RESEARCH CENTER

FIELD
Applied Mathematics, Computation and Simulation

Activity Report 2015

Section Dissemination

Edition: 2016-03-21

ACUMES Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific events organisation

8.1.1.1. General chair, scientific chair

- J.-A. Désidéri and A. Habbal jointly held the chairs of the 27th IFIP TC7 Conference 2015 on System Modelling and Optimization, SophiaTech Campus Sophia Antipolis, France June 29 - July 3, 2015.
- A. Habbal was general co-chair of the LIRIMA Biomathematics workshop, 11-12 November 2015, In LERMA - Mohammadia Engineering School, Mohammed V University - Rabat, Morocco.

8.1.1.2. Member of the organizing committees

- P. Goatin was member of the Organizing Committee of the workshop *"Mathematical Foundations of Traffic"* at IPAM (UCLA), Los Angeles (USA). Sept. - Oct. 2015. http://www.ipam.ucla.edu/programs/workshops/workshop-i-mathematical-foundations-of-traffic/
- P. Goatin co-organized with J. Härri (EURECOM) the Labex UCN@Sophia thematic day *"Intelligent Transport Systems"*. March 2015.
- J.-A. Désidéri and A. Habbal directed the Organizing Committee of the 27th IFIP TC7 Conference 2015 on System Modelling and Optimization, SophiaTech Campus Sophia Antipolis, France June 29 - July 3, 2015

8.1.2. Journal

8.1.2.1. Reviewer - Reviewing activities

- R. Duvigneau is reviewers for the following international journals : Computers & Fluids, International Journal for Numerical Methods in Fluids, Computer Methods for Applied Mechanical Engineering, Computer Aided Geometric Design, Applied Mathematics & Mechanics, Engineering Optimization.
- P. Goatin is reviewers for the following international journals: Acta Applicandæ Mathematicæ ; African Journal of Mathematics and Computer Science Research; Algorithms; Annales de l'Institut Henri Poincaré (C) Analyse Non Linéaire; Applied Mathematics and Computation; Computer-aided Civil and Infrastructure Engineering; Discrete and Continuous Dynamical Systems; European Journal of Operational Research; IEEE Transactions on Automatic Control; IEEE Transactions on Intelligent Transportation Systems; International Journal of Dynamical Systems and Differential Equations; Journal of Computational Physics; Journal of Flow, Turbulence and Combustion; Mathematical Models and Methods in Applied Sciences; Mathematics of Computation; Networks and Heterogeneous Media; New Journal of Physics; Nonlinear Analysis Ser. B: Real World Applications; SIAM Journal of Mathematical Analysis; SIAM Journal of Applied Mathematics; SIAM Journal of Numerical Analysis; SIAM Journal on Scientific Computing.
- A. Habbal is reviewer for the following international journals: Applied Mathematics (AM), Scientific Research Publishing ; Journal of Structural and Multidisciplinary Optimization ; Journal of Math. Model. Nat. Phenom. ; International Journal of Mechanical Sciences ; Modern Applied Science ; Asian Journal of Control ; Applied Mathematics and Computation ; Computer Methods in Applied Mechanics and Engineering.

8.1.3. Invited talks

- J.-A. Désidéri: Contributions to PDE for Applications, Univ. Paris 6, Aug. 31-Sept. 1 2015. "Multiple-Gradient Descent Algorithm (MGDA) applied to the parametric optimization of pulsating jets in unsteady flow".
- P. Goatin: 8th International Congress on Industrial and Applied Mathematics, Beijing (China), August 2015. Mini-symposium: "Data-driven mathematical models for production and traffic flow". Invited talk: *"Uncertainty quantification in traffic flow models calibration from GPS data"*.
- P. Goatin: 13th Viennese Workshop on Optimal Control and Dynamic Games, Vienna (Austria), May 2015. Special session: "Mean-field models and control of multi-agent systems". Invited talk: *"Conservation laws with non-local flux in traffic flow modeling"*.
- P. Goatin: CoToCoLa - Conference on Contemporary topics in conservation laws, Besançon (France), February 2015. Invited talk: *"Conservation laws with non-local flux in traffic flow modeling"*.
- A. Habbal: 1st Summer School Labex MS2T - Multi-objective design and optimisation of technological systems, Cap Hornu, August 2015. Invited lecture: *Multidisciplinary Optimization and Game Theory.*

8.1.4. Research administration

- P. Goatin is member of BCP ("Bureau du Comité des Projets") at Inria Sophia Antipolis Méditerranée.
- R. Duvigneau is member of the "Conseil National des Universités" (CNU) for the 26th section (applied mathematics).

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Master: Advanced Optimization, 40.5 hrs, M2, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis (J.-A. Désidéri, R. Duvigneau).

Master: Conservation laws and finite volume scheme, 30 hrs, M2, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis (P. Goatin).

Master: Multidisciplinary Optimization, 22.5 hrs, joint *Institut Supérieur de l'Aéronautique et de l'Espace* (ISAE Supaéro, "Complex Systems") and M2 (Mathematics), Toulouse (J.-A. Désidéri, R. Duvigneau).

Licence: Numerical Methods I, 76hrs, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis (A. Habbal).

Licence: Summer Project in Mathematical Modeling, 36 hrs, L3, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis (A. Habbal).

Master: Numerical Methods for Partial Differential Equations, 66 hrs, M1, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis (A. Habbal).

Master: Concurrent design in building structures, M2 Students Project, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis (A. Habbal).

8.2.2. Supervision

PhD : Sébastien Bourasseau, *Contribution to a mesh refinement method based on the adjoint vector for the computation of aerodynamic outputs*, December 2015. Supervisors : J.-A. Désidéri and J. Peter (ONERA).

PhD : Matthias Mimault, *Crowd motion modeling by conservation laws*, University of Nice Sophia Antipolis, December 2015. Supervisor: P. Goatin.

PhD in progress : Cédric Durantin, *Meta-modelling for the optimization of nanophotonic devices*, October 2014. Supervisors : J.-A. Désidéri and A. Glière (CEA LETI).

PhD in progress : Quentin Mercier, *Multicriterion optimization under uncertainties : the stochastic multiple gradient approach. Application to aerelasticity*, October 2015. Supervisors : J.-A. Désidéri and F. Poirion.

PhD in progress : Maroua Mokni, *Development, analysis and numerical evaluation of MGDA*, October 2013. Supervisors : J.-A. Désidéri and M. Ayadi (LAMSIN-ENIT, Tunisia).

PhD in progress : Sosina Mengistu-Gashaw (EURECOM), *Mobility and connectivity modelling of 2-wheels traffic for ITS applications* , March 2015. Supervisors: P. Goatin and J. Härri (EURECOM).

PhD in progress: Boutheina Yahyaoui, *Validation of mecano-chemo-biological models for cell sheet wound closure*, Jan 2013, Supervisors: A. Habbal, Mekki Ayadi (LAMSIN, ENIT, Tunis)

PhD in progress: Rabeb Chamekh, *Game strategies for thermo-elasticity*, Jan 2015, Supervisors: A. Habbal, Moez Kallel (LAMSIN, ENIT, Tunis)

PhD in progress: Kelthoum Chahour, *Modeling and optimal design of coronary angioplastic stents*, Nov 2015, Supervisors: A. Habbal, Rajae Aboulaich (LERMA, EMI, Rabat)

PhD in progress: A. Gdhami, *isogeometric analysis methods for hyperbolic systems*, University of Tunis / University of Nice - Sophia Antipolis, Oct. 2013, supervisors: R. Duvigneau and M. Moakher (ENIT).

PhD in progress: M. Sacher, *advanced methods for numerical optimization of yacht performance*, Ecole Navale , Oct. 2014, supervisors: R. Duvigneau, O. Le Maitre (LIMSI), F. Hauville and J.-A. Astolfi (Ecole Navale).

8.2.3. Juries

- P. Goatin was member of the selection (Inria Sophia Antipolis) committee for the competitive selection of young graduate scientists (CR2).
- P. Goatin was member of the committee of Y. Tang's PhD thesis *"Stability analysis and Tikhonov approximation for linear singularly perturbed hyperbolic systems"*, Université de Grenoble, September 18th, 2015.
- P. Goatin was referee of U. Razafiston's Habilitation thesis *"Contribution à l'analyse théorique de problèmes elliptiques en domaine non borné, à la simulation numérique d'équations hyperboliques et aux méthodes de bases réduites"*, Université de Besançon, December 3rd, 2015.
- A. Habbal was referee of M F. Frabolot PhD thesis *optimisation de forme avec detection automatique de parametres* (Mécanique avancée, UT Compiègne), March 2015
- A. Habbal was referee of R.F. Coelho Habilitation HDR *Optimisation structurale et multidisciplinaire en mécanique et en Génie civil* (UT Compiègne), April 2015
- J.-A. Désidéri was referee of Gwladys Ravon's PhD thesis *Inverse problems for heart optical cartography*, December 18th, 2015.
- R. Duvigneau was reviewer of the PhD manuscript of D. Valizadeh ("Development and analysis of a discrete adjoint operator for incompressible Navier-Stokes equations for low Reynolds number", Ecole Centrale de Nantes).

CAGIRE Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific events organisation

10.1.1.1. Member of the organizing committees

Member [RM] of the steering committee of the Special Interest Group "Turbulence Modelling" (SIG-15) of ERCOFTAC (European Research COmmittee for Flow, Turbulence and Combustion) that organizes a series of international workshops dedicated to cross-comparisons of the results of turbulence models and experimental/DNS databases.

10.1.2. Scientific events selection

10.1.2.1. Member of the conference program committees

- Member [RM] of the scientific committee of the Intl Symp. Turbulence, Heat and Mass Transfer, Sarajevo, Bosnia and Herzegovina, 2015

10.1.2.2. Reviewer

This year, the team members have reviewed (12) contributions to the following conferences:

ECOS 2015 (Pau, France) (1) [PB] ASME GT Turbo Expo 2015 (Montréal, Canada) (2) [PB] ASME-GT Turbo Expo 2016 (Séoul, South Korea) (2) [PB] THMT-2015 (Sarajevo, Bosnia-Herzegovina) (5) [RM] NURETH (The Haag, The Netherlands) (2) [RM]

10.1.3. Journal

10.1.3.1. Reviewer - Reviewing activities

This year, the team members have reviewed (29) papers for the following journals:

- Aerospace Science and Technology (6) [PB]
- Combustion and Flame (5) [PB]
- Computers & Fluids (1) [VP]
- International Journal of Fluid Mechanics Research (2) [PB]
- International Communications in Heat and Mass Transfer (1)[YM]
- International Journal of Sustainable Aviation (1) [PB]
- Journal of Computational and Applied Mathematics (1) [YM]
- Journal of Computational Physics (2) [VP]
- Journal of Petroleum Science and Engineering (2) [PB]
- Journal of the Taiwan Institute of Chemical Engineers (1) [PB]
- International Journal of Heat and Fluid Flow (3) [RM]
- Flow Turbulence and Combustion (2) [RM]
- Journal of Fluid Mechanics (1) [RM]
- Heat Transfer Engineering (1) [RM]

10.1.4. Invited talks

- “A brief overview of Inria Cagire team activity”, CTA/ITA/IAE, Sao José dos Campos, Brazil, 26 November 2015. [PB]

10.1.5. Scientific expertise

V. Perrier is an expert for research for the "Région Île de France".

10.1.6. Research administration

V. Perrier is a member of the evaluation committee, which is in charge of assessing the calibre of research conducted at Inria and guaranteeing the quality of its hiring and internal promotions.

V. Perrier participated to the hiring committees for Young Graduate Scientists (CR2) in Inria Bordeaux and Inria Saclay. He participated also to the hiring committee for an assistant professor in Pau.

V. Perrier is member of the health, safety and working conditions comittee, in charge of watching the prevention in the Bordeaux Sud Ouest center.

V. Perrier is appointed member of the Scientific Applications committee of Pau University in charge of developing the scientific computing and high performance computing policy within Pau University.

V. Perrier is an elected member of the Mathematics and Application experts committee in Pau university, in charge of hiring the non permanent teachers, of forming the hiring comittees for assistant professors, and of ranking the proposition of invited professors. He was elected vice-chair of this comittee in 2015.

V. Perrier is the scientific responsible for the website of the Mathematics department in Pau.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Master : [RM], Turbulence Modelling, 28h, École centrale de Lille/ENSI Poitiers/ISAE-ENSMA, Poitiers, France.
- Engineering School: [RM] Industrial codes for CFD, 12h, ISAE-ENSMA, Poitiers, France.
- Master : [PB] “Fluid mechanics: Mach zero flows vs low Mach number flows”, 30h, M2, Al Faraby University, Almaty, Kazakhstan.
- Master : [PB], "An introduction to the numerical simulation of reacting flows", 15h, M2, ISAE-SupAéro, Toulouse, France.
- Licence : [JJ], "Sequences and functions of one variable", 48h45, L1 - Geo-sciences, Université de Pau et des Pays de l’Adour, Pau, France.
- Licence : [JJ], "Mathematics for the geo-sciences 2", 19h30, L2 - Chemistry, Université de Pau et des Pays de l’Adour, Pau, France.
- Licence : [JJ], "Sequences and series", 19h30, L2 - MIASHS, Université de Pau et des Pays de l’Adour, Pau, France.

10.2.2. Supervision

- PhD : Simon Delmas, Simulation numérique directe d’un jet en écoulement transverse à bas nombre de Mach en vue de l’amélioration du refroidissement par effusion des chambres de combustion aéronautiques, 16 December 2015, Sup.:[PB] and Co-sup.: [VP].
- PhD in progress: Jean-François Wald, Modélisation de la turbulence avec traitement adaptatif des parois prenant en compte la thermique active ou passive, started October 2013, Sup.: [RM]

- PhD in progress : Nurtoleu Shakhan, Modelling and simulation of supersonic jet in crossflow, University of Almaty (Kazakhstan), started October 2013, Sup.:A. Naïmanova and Co-Sup.:[PB] (the thesis subject has been modified mid-2014).
- Young Engineer: Benjamin Lux, Implementation of h-p multigrid in Aerosol, Sup.: [VP]

10.2.3. Juries

The participation in the following thesis juries is noted ("referee" in a French doctoral thesis jury is more or less equivalent to an external opponent in an Anglo-Saxon like PhD jury):

- PhD : G. Sempionato "Numerical study of premixed stratified flame using the b-theta flame wrinkling model with extinction limit", National Institute of Aerospace Research (INPE), Sao José dos Campos, Brazil, 25 november 2015, Sup.: W.M.C. Dourado. [PB]
- PhD : D. Lahbib « Modélisation aérodynamique et thermique des multiperforations en LES », University of Montpellier-2, France, 17 December 2015. Supervisor and co-supervisor: F. Nicoud and A. Dauptain.[PB, referee]
- PhD : A. Ghani « Simulation aux grandes échelles des instabilités de combustion transverses pour des flammes parfaitement prémélangées et swirlées diphasiques ». University of Toulouse, France, 17 September 2015. Supervisor: L. Gicquel. [PB]
- PhD : C. Koupper “Unsteady multi-component simulations dedicated to the impact of the combustion chamber on the turbine of aeronautical gas turbines”, Université de Toulouse, France, 11 May 2015 (Rapporteur). Supervisor and co-supervisor: L. Gicquel and P. Duchaine. [PB, referee]
- PhD : N. Petrova “Turbulence-chemistry interaction models for numerical simulation of aeronautical propulsion systems”, École Polytechnique, Palaiseau, France, 16 January 2015. Supervisor: V.A. Sabel’nikov. [PB, referee]

10.3. Popularization

- « Simulation d’écoulements turbulents : retour d’expérience de partenariats de recherche », Meeting "Nature & Technology" organized by the "Conseil départemental des Pyrénées Atlantiques", devoted to « La recherche scientifique au service de l’aéronautique », Parlement de Navarre, Pau, France, 12 November 2015. [PB]
- « Carrefour des Métiers» organized by the "Zone d’Activité Pédagogique d’Orthez", gymnase Blazy, Mourenx(64), France, 4 April 2015 (a stand was manned by [PB] during one day with the objective of explaining the activity of researcher to an audience of schoolboys/girls and high school students).

CARDAMOM Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific events organisation

In collaboration with J.-C. Saut, Mathieu Colin has organized the workshop "Quasilinear and nonlocal nonlinear Schrôdinger equations" at the Pauli institute, Vienna. (sept. 28th 2015-oct. 2nd 2015).
Pietro Marco Congedo and Luc Mieussens have contributed to the organisation of the Workshop “Modèles et Méthodes Cinétiques pour la Dynamique des Gaz Raréfiés”, Octobre 2015, Bordeaux (with Céline Baranger and Julien Mathiaud).

10.1.1.1. Member of the conference program committees

In collaboration with H. Kalisch (University of Bergen), Mathieu Colin has organized the session "Fully nonlinear Boussinesq models: Theory and practice" to the Nineth IMACS International Conference on Nonlinear Evolution Equation and Wave phenomena : Computation and Theory (April 01-05 2015).
In collaboration with A.-P. Engsig-Karup (DTU Compute), and C. Eskilsson (Chalmers University), Mario Ricchiuto has organized the session "Hydrodynamic modelling of wave energy converters" at the 2nd Frontiers in Computational Physics Conference: Energy Sciences, 3-5 June 2015, Zurich, Switzerland
In collaboration with E. Miglio (MOX Politecnico di Milano), Mario Ricchiuto has organized the session "Robust and Multi Scale Models for Water Wave Propagation" at the 2015 SIAM Conference on Mathematical and Computational Issues in the Geosciences, Stanford, June 29-July 2, 2015

10.1.1.2. Member of the editorial boards

Mathieu Colin is a member of the board of the journal Applications and Applied Mathematics: An International Journal (AAM)
Mario Ricchiuto is member of the editorial board of *Computers & Fluids, Elsevier*.

10.1.1.3. Reviewer - Reviewing activities

We reviewed papers for top international journals in the main scientific themes of the team : journal of Computational Physics, Computer Methods in Applied Mechanics and Engineering, Optimization and Engineering, International Journal of Numerical Methods in Fluids, Physics of Fluids, Journal of Marine Science and Technology, Engineering Applications of Computational Fluid Mechanics, Computers and Fluids, International Journal of Modelling and Simulation in Engineering Aircraft Engineering and Aerospace Technology, International Journal of Computational Fluid Dynamics, Applications and applied mathematics : An international journal, Discrete and Continuous Dynamical Systems - Series A, Electronic Journal of Differential Equations, Calculus of Variations and Partial Differential Equations, Nonlinear Analysis: Modelling and Control, Advanced Nonlinear Studies, Communications on Pure and Applied Analysis, Communications in Computational Physics.

10.1.2. Invited talks

- 13th US National Congress on Computational Mechanics: H. Beaugendre *et al.*, Unsteady residual distribution schemes adapted to immersed boundary methods on unstructured grids to account for moving bodies, San Diego, CA, July 26-30, 2015.
- Pietro Marco Congedo has been invited as Speaker in three Lectures at the VKI lecture Series 38th Advanced Computational Fluid Dynamics. Adjoint methods and their application in Computational Fluid Dynamics, 2015, Von Karman Institute.
- P.M. Congedo, A phase transition model and scheme for reproducing cavitation, Workshop TOTAL MATHIAS, October 2015, Paris.
- Mario Ricchiuto, Simple conservative Simple and conservative mesh adaptation for shallow water flows, Oberwolfach workshop on "Recent Developments in the Numerics of Nonlinear Hyperbolic Conservation Laws", Oberwolfach (Germany), September 2015
- Luc Mieussens, SIAM conference on Computational Science & Engineering, 2015, Salt Lake City (Utah, USA)
- Luc Mieussens, Workshop "Kinetic and Related Equations", 2015, Oaxaca (Mexico), July 2015
- Luc Mieussens, Numerical Simulation of the Crookes Radiometer, 2nd European Conference on Non-equilibrium Gas Flows, University of Technology of Eindhoven (Nederlands), December 2015

10.1.3. Leadership within the scientific community

- As of January 2015, Luc Mieussens is member of the scientific board of CEA ;
- Pietro Marco Congedo is part of the scientific committee of the ARA (Association pour la rentrée atmosphérique) Association;
- Mario Ricchiuto is member of the Industrial CFD committee of the Aristote association ;

10.1.4. Scientific expertise

H. Beaugendre: ANR expertise (programme accompagnement spécifique des travaux de recherches et d'innovation defense).

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence : Mathieu Colin, Analyse Fonctionnelle et Intégration, 54 h, L3, ENSEIRB-MATMÉCA, FRANCE

Licence : Mathieu Colin, TER 32h, L3, ENSEIRB-MATMÉCA, FRANCE

Licence : Mathieu Colin, Analyse, L1, Formation alternée INP, FRANCE

Licence : Pietro Marco Congedo, Fundamentals of Numerical Analysis II, 24h, ENSEIRB-MATMÉCA, France.

Licence : Cécile Dobrzynski, Langages en Fortran 90, 54h, L3, ENSEIRB-MATMÉCA, FRANCE

Licence : Cécile Dobrzynski, Analyse numérique, 24h, L3, ENSEIRB-MATMÉCA, FRANCE

Licence : Mario Ricchiuto, Fundamentals of Numerical Analysis, 24h,ENSEIRB-MATMÉCA, France.

Master : Héloïse Beaugendre, Responsable de filière de 3ème année, 15h, M2, ENSEIRB-MATMÉCA, France

Master : Héloïse Beaugendre, Calcul Parallèle (OpenMP-MPI), 40h, M1, ENSEIRB-MATMÉCA et Université de Bordeaux, France

Master : Héloïse Beaugendre, Encadrement de projets de la filière Calcul Haute Performance, 15h, M2, ENSEIRB-MATMÉCA, France

Master : Héloïse Beaugendre, Calcul Haute Performance et décomposition de domaine, 39h, M2, ENSEIRB-MATMÉCA et Université Bordeaux, France

Master : Héloïse Beaugendre , Projet fin d'études, 4h, M2, ENSEIRB-MATMÉCA, FRANCE

Master : Mathieu Colin, PDE, 30 H, M1, ENSEIRB-MATMÉCA, FRANCE

Master : Mathieu Colin, EDP appronfondies, 36 h, M2, Université de Bordeaux, FRANCE

Master : Mathieu Colin, TER, 12h, M1, ENSEIRB-MATMÉCA, FRANCE

Master : Mathieu Colin, Projet fin d'études, 6h, M2, ENSEIRB-MATMÉCA, FRANCE

Master : Pietro Marco Congedo, Simulation Numerique des ecoulements fluides, 20h, M2, ENSEIRB-MATMÉCA, France

Master : Cécile Dobrzynski, Projet fin d'études, 6h, M2, ENSEIRB-MATMÉCA, FRANCE

Master : Cécile Dobrzynski, TER, 16h, M1, ENSEIRB-MATMÉCA, FRANCE

Master : Cécile Dobrzynski, Théorie du maillage, 12h, M2, formation Structures Composites, ENSCBP, FRANCE

Master : Cécile Dobrzynski, Techniques de maillages, 36h, M2, ENSEIRB-MATMÉCA, FRANCE

Post-graduate: Mario Ricchiuto, 12h, Computational Methods for Compressible Flows, Research Master, von Karman Institute for Fluid Dynamics, BELGIUM

10.2.2. Supervision

PhD in progress : Arpaia Luca, Continuous mesh deformation and coupling with uncertainty quantification for coastal inundation problems, started in March 2014.

PhD in progress : Bosi, Umberto, ALE spectral element Boussinesq modelling of wave energy converters, started in November 2015

PhD in progress : Bellec Stevan, Discrete asymptotic modelling of free surface flows, October 2013.

PhD in progress : Cortesi Andrea, Predictive numerical simulation for rebuilding freestream conditions in atmospheric entry flows, started in October 2014.

PhD in progress : Filippini Andrea, Nonlinear finite element Boussinesq modelling of non-hydrostatic free surface flows, started in February 2014.

PhD in progress: Fusi Francesca, Stochastic robust optimization of a helicopter rotor airfoil, started in October 2013.

PhD in progress: Lin Xi, Asymptotic modelling of incompressible reactive flows in self-healing composites, started in October 2014.

PhD in progress : Nouveau Léo, Adaptation de maillage non structurés anisotropes pour les méthodes de pénalisation en mécanique des fluides compressibles, started in Oct 2013.

PhD in progress: Perrot Gregory, Physico-chemical modelling of self-healing ceramic composites, started in October 2011.

PhD in progress : Peluchon Simon, Approximation numérique et modélisation de l'ablation différentielle de deux matériaux: application à l'ablation liquide. Started in December 2014.

PhD in progress : Viville Quentin, Etude sur les méthodes de pénalisation adaptées aux maillages non-structurés fortement anisotropiques et utilisation de l'adaptation de maillage, started in Oct 2013.

10.2.3. Juries

PhD Jury:

- B. Monmarson, Institut National Polytechnique de Grenoble (P. Congedo, rapporteur).
- A. Resmini, UPMC, Paris (P. Congedo).
- L. Margheri, UPMC, Paris P. Congedo).
- C. Mimeau, LJK, Grenoble (H. Beaugendre).
- R. Chauvin, ONERA ISAE SUPAERO, Toulouse (H. Beaugendre).
- G. Perrot, U. Bordeaux (M. Ricchiuto)

10.3. Popularization

- P.M. Congedo, "Houston, YOU have a problem !", Unithé ou café Seminar, Inria Bordeaux Sud-Ouest, Avril 2015.
- M. Ricchiuto has contributed to the organisation of the Solutions Cop21 [0], and represented Inria representatives at the research stand on the opening day.

[0] http://www.inria.fr/institut/strategie/inria-a-la-cop21

DEFI Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

- H. Haddar organized with A. Lechleiter the second edition of the Franco-German Summer School Inverse Problems for Waves Ecole Polytechnique, August 24-28, 2015. Over 50 partcipants took part of this event. This event was mainly funded by the Franco-German university with participation of Inria, Ecole polytechnique and University of Bremen. http://www.math.uni-bremen.de/zetem/cms/detail.php?template=ipschool2015_parse_title&person=ip-school2015

9.1.1.1. General chair, scientific chair

- G. Allaire is the scientific chair and one of the main organizers of the CEA/GAMNI seminar on computational fluid mechanics, IHP Paris (January 2015).

9.1.1.2. Member of the organizing committees

- G. Allaire, PGMO conference (27-28 October 2015).

9.1.2. Scientific events selection

9.1.2.1. Member of the conference program committees

- H. Haddar, Waves 2015, Kalsruhe (July 2015)

9.1.3. Journal

9.1.3.1. Member of the editorial boards

- G. Allaire is member of the editorial board of
  - book series "Mathématiques et Applications" of SMAI and Springer,
  - ESAIM/COCV, Structural and Multidisciplinary Optimization,
  - Discrete and Continuous Dynamical Systems Series B,
  - Computational and Applied Mathematics,
  - Mathematical Models and Methods in Applied Sciences (M3AS),
  - Annali dell'Universita di Ferrara,
  - OGST (Oil and Gas Science and Technology),
  - Journal de l'Ecole Polytechnique - Mathématiques,
  - Journal of Optimization Theory and Applications.
- H. Haddar is member of the editorial advisory board of Inverse Problems
- J.-R. Li is an Associate Editor of the SIAM Journal on Scientific Computing.

9.1.3.2. Reviewer - Reviewing activities

The members of the team reviewed numerous papers for numerous international journals. Too many to make a list.

9.1.4. Invited talks

- Lucas Chesnel gave a talk at the “Séminaire de Mathématiques Appliquées du Collège de France”. The video is available here http://www.college-de-france.fr/site/pierre-louis-lions/seminar-2015-01-16-11h15.htm
- Grégoire Allaire
  - 4ème conférence internationale de la SM2A, Oujda, Maroc (february 2015). Congrès "Simulation" de la Société des Ingénieurs de l'Automobile (SIA), Montigny le Bretonneux (march 2015).
  - Journées du GDR Mascot-Num, Saint-Etienne (april 2015).
  - European forum on additive manufacturing, Chatenay Malabry (june 2015).
  - Ecole d'été du CIMPA, Mumbai (july 2015).
  - Variational Analysis and Aerospace Engineering, Erice (september 2015).
  - Workshop on Optimal Control of Partial and Ordinary Differential Equations, Palaiseau (november 2015).
  - Calculus of Variations and its Applications, Lisboa (december 2015).
- Houssem Haddar
  - Mini-symposium “Inverse problems for elliptic PDEs, analysis and applications”, IFIP, June 29 - July 3, 2015
  - IMA Hot Topics Workshop, Hydraulic Fracturing: From Modeling and Simulation to Reconstruction and Characterization, University of Minnesota, May 11-14, 2015
  - Workshop "reconstruction, stability and applications in inverse problems", IHP, 29 June - 3 July 2015
  - Workshop “problèmes inverses pour les EDP”, Université de Reims, 2-3 June, 2015
  - Workshop on "Inverse Problems in Wave Propagation", IWaP 2015, University of Bremen, April 7-10, 2015.
  - Workshop on “Multi-scale Waveform Modeling and Inversion” at KAUST from March 22-24 2015

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

- Licence : Grégoire Allaire, Approximation Numérique et Optimisation, for students in the second year of Ecole Polytechnique curriculum: 8 lessons of 1h30.
- Licence : Houssem Haddar, Approximation Numérique et Optimisation, for students in the second year of Ecole Polytechnique curriculum: 8 TDs of 4h.
- Licence : Houssem Haddar, Variational analysis of partial differential equations, for students in the second year of Ecole Polytechnique curriculum: 8 TDs of 4h.
- Licence: Lucas Chesnel, “Elementary tools of analysis for partial differential equations”, 29 equivalent TD hours, L3, Ensta ParisTech, Palaiseau, France
- Licence: Lucas Chesnel, Mentoring for the course “Variational analysis of partial differential equations”, 15 equivalent TD hours, L3, École Polytechnique, Palaiseau, France
- Master : Grégoire Allaire, Optimal design of structures, for students in the third year of Ecole Polytechnique curriculum. 9 lessons of 1h30.
- Master : Grégoire Allaire, Transport et Diffusion, for students in the third year of Ecole Polytechnique curriculum. With F. Golse, 1/2 of 9 lessons of 1h30.

- Master : Grégoire Allaire, Functional analysis and applications, for Master (M2) students of Ecole Polytechnique and Paris 6 University, 6 lessons of 3h.
- Master : Houssem Haddar, Inverse problems, for Master (M2) students of Ecole Polytechnique and Paris 6 University, 1/2 of 9 lessons of 2h.
- Master: Lucas Chesnel, "A mathematical study of transmission problems with sign-changing coefficients", (main instructor) 16 equivalent TD hours, M2, Ensta ParisTech, Palaiseau, France

9.2.2. Supervision

- Ph.D. : L. Audibert, Qualitative methods for non destructive testing of concrete like materials, September 2015, Ecole polytechnique, H. Haddar.
- Ph.D. : T. Mercier Data assimilation for temperature estimates in PWR, September 2015, Ecole polytechnique, H. Haddar.
- Ph.D. : T. Rienmuller, Scattering for inhomogeneous waveguides, 2015, September 2015 University of Bremen and Ecole polytechnique, A. Lechleiter and H. Haddar.
- Ph.D. in progress: M. Lakhal, Time domain inverse scattering for buried objects, 2014, H. Haddar
- Ph.D. in progress: T.P. Nguyen, Direct and Inverse scattering from locally perturbed layers, 2013, H. Haddar
- Ph.D. in progress: B. Charfi, Identification of the sigular support of a GIBC, 2014, H. Haddar and S. Chaabane
- Ph.D. in progress: G. Fournet, Inclusion of blood flow in micro-vessels in a new dMRI signal model, 2013, J.-R. Li and L. Ciobanu
- Ph.D. in progress: S. Schiavi, Homogenized models for Diffusion MRI, 2013, H. Haddar and J.-R. Li
- Ph.D. in progress: K. Van Nguyen, Modeling, simulation and experimental verification of water diffusion in neuronal network of the Aplysia ganglia, 2014, J.-R. Li and L. Ciobanu
- PhD in progress : A. Maury, shape optimization for non-linear structures, 2013, G. Allaire and F. Jouve
- PhD in progress : J.-L. Vié, optimization algorithms for topology design of structures, 2013, G. Allaire and E. Cancès
- PhD in progress : C. Patricot, coupling algorithms in neutronic/thermal-hydraulic/mechanics for numerical simulation of nuclear reactors, 2013, G. Allaire and E. Hourcade
- PhD in progress : A. Talpaert, the direct numerical simulation of vapor bubbles at low Mach number with adaptative mesh refinement, 2013, G. Allaire and S. Dellacherie
- PhD in progress : A. Bissuel, linearized Navier Stokes equations for optimization, floating and aeroaccoustic, 2014, G. Allaire
- PhD in progress : M. Giacomini, Shape optimization and Applications to aeronautics, 2013, O. Pantz and K. Trabelsi
- PhD in progress :P. Geoffroy on topology optimization by the homogenization method in the context of additive manufacturing (Safran Tech, to be defended in 2019), G. Allaire.

ECUADOR Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. Member of the organizing committees

- Laurent Hascoët is on the organizing commitee of the EuroAD Workshops on Algorithmic Differentiation.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master : Laurent Hascoët, Optimisation avancée, 15 h, M2, University of Nice

9.2.2. Supervision

PhD : Gautier Brèthes, “Multigrilles anisotropes adaptatives”, defended december 10, advisor A. Dervieux

PhD in progress : Ala Taftaf, “Adjoint Automatic Differentiation on High-performance codes”, started july 2013, advisor L. Hascoët.

PhD in progress : Éléonore Gauci, “Norm-oriented criteria for CFD and coupled CSM-CFD systems”, started october 2014, advisor A. Dervieux

9.2.3. Juries

- Alain Dervieux, jury, PhD defense of Nicolas Barral, University Paris VI, november 27.
- Alain Dervieux, jury, PhD defense of Vilas Schinde, X-IMSIA, december 17.

9.3. Popularization

Alain Dervieux and Ala Taftaf participated to the event “la fête de la science” in Antibes, october 10-11.

GAMMA3 Project-Team (section vide)

IPSO Project-Team

7. Dissemination

7.1. Promoting Scientific Activities

7.1.1. Scientific events organisation

7.1.1.1. Member of the organizing committees

- M. Lemou and F. Méhats organized the CHL (Labex) workshop *Mathematical problems and modelization in kinetic theory*, Rennes, May 26-29 2015.
- E. Faou organized with B. Grébert, E. Paturel and L. Thomann (Univ. Nantes) the CHL (Labex) Summer school *PDE and large time asymptotics*, Nantes, June 22 - July 3 2015.
- N. Crouseilles and P. Chartier organized the CHL (Labex) workshop *Multiscale numerical methods for differential equations*, Rennes, August 25-27, 2015.
- F. Castella and P. Chartier organized the IPSO-LODIQUAS workshop with the support of the ANR LODIQUAS and MOONRISE, Dinard, December 9-11 2015.
- M. Lemou organized a mini-symposium at the 9th International Conference on Computational Physics (ICCP9): *numerical methods for quantum and kinetic problems*, Singapore, Junary 7-11 2015.
- N. Crouseilles and M. Lemou organized a mini-symposium at the national Congrès SMAI 2015: *Numerical Approaches for Stiff PDEs*, Les Karellis, June 8-12, 2015.

7.1.2. Scientific events selection

7.1.2.1. Member of the conference program committees

- P. Chartier was member of the scientific committee of ENUMATH 2015, 14-18 september, Ankara, Turkey.

7.1.3. Journal

7.1.3.1. Member of the editorial boards

- P. Chartier is member of the editorial board of *Mathematical Modelling and Numerical Analysis*.
- A. Debussche is editor in chief of *Stochastic Partial Differential Equations: analysis and computations*.
- A. Debussche is member of the editorial board of *Potential Analysis*.
- A. Debussche is member of the editorial board of *Journal of Evolution Equations*.
- A. Debussche is member of the editorial board of *Differential and Integral Equations*.
- A. Debussche is member of the editorial board of *ESAIM: proceedings*.
- A. Debussche is member of the editorial board of the collection *Mathématiques et Applications*.

7.1.3.2. Reviewer - Reviewing activities

The members of the team reviewed numerous papers for numerous international journals (Comm. Math. Phys., SIAM journals, J. Comput. Phys., $\cdots$).

7.1.4. Invited talks

- P. Chartier gave a talk at *The 9th International Conference on Computational Physics*, Singapore, January 7-11, 2015.
- E. Faou gave a talk at the seminar of analysis, at the university of Toulouse, January, 2015.
- E. Faou gave a talk at the Seminar ANEDP, University of Lille 1, January, 2015.
- P. Chartier gave a seminar at the University of Geneva, March 10, 2015.
- E. Faou gave a talk at ENS Lyon in the physics department, May 2015.
- E. Faou gave a talk at the workshop *Mathematical Methods in Quantum Molecular Dynamics*, organized by G. Hagedorn, C. Lasser and C. Le Bris, Oberwolfach, Germany, June, 2015.
- N. Crouseilles gave a talk in the seminar of the analysis team at the University of Toulouse III, June, 2015.
- P. Chartier gave a talk at the workshop *Modelling and Numerics for Quantum Systems*, Toulouse, September 2-4, 2015.
- E. Faou gave the Dahlquist prize lecture at the *Scicade conference*, Potsdam, Germany, September, 2015.
- P. Chartier gave a colloquium at the '*School of Mathematics in Georgia Tech*, Atlanta, USA, October 29, 2015.
- E. Faou gave a talk in the seminar of the analysis team at the University of Bordeaux I, October, 2015.
- F. Méhats gave seminars in Geneva (Switzerland), Beijing (China), Reims and Lyon.
- M. Lemou gave a talk at the Ki-Net international conference: *Asymptotic Preserving and Multiscale Methods for Kinetic and Hyperbolic Problems*, Madison (USA), May 4-8, 2015.
- M. Lemou gave a talk at the *International Congress on Industrial and Applied Mathematics, ICIAM 2015. Mini-symposium "Analysis and algorithm for coupling of kinetic and fluid equations*, Beijing (China), August 10-14, 2015.
- M. Lemou gave a talk at the *International workshop on kinetic problems in the honor of W. Strauss, R. Glassey and J. Schaeffer: Recent progress in collisionless models*, Imperial College, London, September 7-11, 2015.
- M. Lemou gave two conferences at the university of Wisconsin-Madison during his visit, between october 3 and october 17, 2015.
- A. Debussche gave a talk at the workshop *New challenges in PDE: Deterministic dynamics and randomness in high and infinite dimensional systems*, MSRI, Berkeley (USA), October 19-30, 2015.

7.1.5. Research administration

- F. Méhats has been the head of the IRMAR (UMR CNRS 6625), since June 2015,
- P. Chartier is scientific vice-deputy of the Inria-Rennes center.
- P. Chartier is member of the "Commission d'évaluation" of Inria.
- N. Crouseilles is member of the scientific council of ENS Rennes.
- N. Crouseilles is partly in charge of the weekly numerical analysis seminar at ENS Rennes.
- A. Debussche leads the H. Lebesgue Center (Labex) with San Vu Ngoc (coordinator) and L. Guillopé.
- E. Faou is member of the scientific council of the Pôle universitaire Léonard de Vinci, since september 2015.
- E. Faou is member of the CNU 26, since december 2015.
- M. Lemou is member of the scientific council of ENS Rennes.

- M. Lemou is member of the scientific council of the H. Lebesgue Center (Labex).
- M. Lemou is head of the "numerical analysis IRMAR team".
- F. Castella is head of the european ANR project "Lodiquas", described above.
- F. Castella is member of the "Conseil d'UFR de Mathématiques".

7.2. Teaching - Supervision - Juries

7.2.1. Teaching

Licence : P. Chartier, “Ordinary differential equations", 36 ETDH, L3, ENS Rennes.

Master : P. Chartier, “Numerical geometric integration and averaging methods", 36ETDH, M2, University of Rennes I.

Master : N. Crouseilles, “Numerical methods for kinetic equations", 18ETDH, M2, University of Rennes I.

Licence : N. Crouseilles, “Numerical methods", 36 ETDH, L3, ENS Rennes.

Master : M. Lemou, “Introduction to PDEs: hyperbolic systems and conservation laws.", 36ETDH, M2, University of Rennes I.

Master : F. Castella, “Pseudo-differential calculus.", 24ETDH, M2, University of Rennes I.

Master : F. Castella, “Kinetic equations.", 60ETDH, M1, University of Rennes I.

7.2.2. Supervision

PhD G. Leboucher, "Stroboscopic averaging methods for highly-oscillatory partial differential equations", University of Rennes I, defended on December 8, 2015. Advisors: P. Chartier and F. Méhats.

PhD H. Hivert, started in september 2012. Advisors: N. Crouseilles and M. Lemou.

PhD R. Horsin, started in september 2013. Advisors: E. Faou and F. Rousset.

PhD M. Malo, started in september 2015. Advisors: M. Lemou and F. Méhats.

PhD J. Sauzeau, started in september 2012. Advisors: P. Chartier and F. Castella.

PhD M. Tusseau, started in september 2013. Advisors: A. Debussche and F. Méhats.

7.2.3. Juries

- F. Méhats was referee on the thesis of A. Trescases (ENS Cachan). Defended on September 11, 2015.
- M. Lemou was member of the thesis committee, Phd of Xavier Valentin at Ecole Centrale de Paris. Defended on december 16, 2015.
- M. Lemou was referee on the thesis of T. Leroy (Paris 6) that will be defended on Junary 5, 2016.

MATHERIALS Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

S. Boyaval has coorganized wih G. Enchéry (IFPEN) a SMAI 2015 minisymposium about fast numerical simulation techniques for porous-media flows with highly heterogeneous permeabilities, June 2015.

E. Cancès

- is a member of the editorial boards of Mathematical Modeling and Numerical Analysis (2006-), SIAM Journal of Scientific Computing (2008-), Communications in Mathematical Sciences (2011-), and SIAM MMS (2012-),
- is a member of the executive committee of the CEA-EDF-Inria schools in applied mathematics and computer science.

He has organized or co-organized:

- the ICS summer school on Computational Chemistry and Applied Mathematics, Roscoff, France, Jul. 15-Aug. 14, 2015,
- the MBI Workshop Mathematical Challenges in Drug and Protein Design, Columbus, Ohio, Dec. 7-11, 2015.

L. Chamoin has been a member of the organization committee of the conference "Reduced Basis, POD and PGD Model Reduction Techniques", ENS Cachan, November 2015, and the co-chairman of the "International Conference on Adaptive Modeling and Simulation (ADMOS)", Nantes, June 2015.

He has organized a minisymposium entitled "Applications of error estimation and model adaptation in Computational Mechanics" within the US National Congress of Computational Mechanics, San Diego, July 2015.

V. Ehrlacher has co-organized with Areski Cousin the semester on "Uncertainty Quantification" in the framework of the IHP thematic semester on "Monte-Carlo methods" organized by B. Bouchard, E. Gobet and B. Jourdain.

T. Hudson has organized a minisymposium entitled "Modeling microstructure and material instabilities across a range of scales" at the 3rd ECCOMAS Young Investigator's Conference, Aachen, 20-23 July 2015.

C. Le Bris is editor-in-chief of Applied Mathematics Research Express (2003-). He is a managing editor of Networks and Heterogeneous Media. He is a member of the editorial boards of Annales mathématiques du Québec (2013-), Archive for Rational Mechanics and Analysis (2004-), COCV (Control, Optimization and Calculus of Variations) (2003-), Mathematics in Action (2008-), Nonlinearity (2005-) and Journal de Mathématiques Pures et Appliquées (2009-).

He is a member of the editorial boards of the monograph series Mathématiques & Applications, Series, Springer (2008-), and Modeling, Simulations and Applications, Series, Springer (2009-).

He is a member of

- the Cabinet of the High Commissioner for Atomic Energy,
- the "Comité d'experts" for the "Fondation de Recherche pour l'Aéronautique et l'Espace",
- the "International Scientific Advisory Committee" of the Centre de Recherche Mathématique, Université de Montréal,
- the "Advisory Board" of the DFG Cluster of Excellence Engineering of Advanced Materials, Erlangen,
- the "International Scientific Advisory Board" of the DFG research center Matheon, Berlin,
- the "Conseil scientifique de la SMAI" (Scientific Council of the French Applied Maths Society),
- the International Mathematical Union Circle.

He has held a regular position of Visiting Professor at the University of Chicago.

He has been a member of the scientific committee of the conference "Dimension reduction: mathematical methods and Applications", Pennsylvania State University, March 21-24, 2015.

He has co-organized

- with G. Hagedorn and C. Lasser, the Oberwolfach Workshop *Mathematical problems in dynamical quantum chemistry*, Oberwolfach, June 1-6 2015,
- with I. Kim, Fang-Hua Lin and P. Souganidis, the Banff Workshop *Developments in the Theory of Homogenization*, BIRS, Banff, July 26-31 2015.

F. Legoll

- is a member of the editorial board of SIAM MMS (2012-) and of ESAIM Proc (2012-),
- has been a member of the Scientific Committee of SciCADE 2015.

T. Lelièvre

- is editor-in-chief of ESAIM: Proceedings (with D. Chafai, P. Lafitte and C. Mouhot),
- has co-organized the Workshop "Free-energy calculations: A mathematical perspective" at BIRS, Casa Matemática Oaxaca, Mexico, July 19-24th, 2015 (with C. Chipot and R. Skeel).
- was in the scientific committee of the conference MoRePaS 2015, Trieste, October 2015,
- co-organizes the Journées EDP-Probas at Institut Henri Poincaré (with F. Malrieu),
- is in charge of the Theme 4 (Stochastic modeling, quantification and uncertainty propagation for multiscale mechanical models of materials) of the Labex MMCD,
- is involved in the organization of the IHP trimester on numerical PDEs (PI D.A. Di Pietro, A. Ern and L. Formaggia), September-December 2016.

G. Stoltz co-organizes the IHP trimester "Stochastic Dynamics Out of Equilibrium", Spring 2017 (with G. Giacomin, S. Olla, E. Saada and H. Spohn).

9.2. Teaching - Supervision - Juries

The members of the project-team have taught the following courses:

- Licence: Maths1 et 2, 9h, L3, École des Mines (G. Stoltz),
- Licence: Outils mathématiques pour l'ingénieur, 15h, L3, École des Ponts (E. Cancès, V. Ehrlacher, T. Hudson, F. Legoll, T. Lelièvre),
- License: Analyse et calcul scientifique, 30h, L3, École des Ponts (T. Hudson, G. Stoltz),
- Master: Mécanique des Milieux Continus - partie Solides, 14h, M1, ENS Cachan (L. Chamoin),
- Master: Ondes et Chocs dans les Structures, 8h, M1, ENS Cachan (L. Chamoin),
- Master: Mathématiques des modèles multiéchelles, 39h, M1, École des Ponts (F. Legoll),
- Master: Contrôle des modèles et dualité, 24h, M2, ENS Cachan (L. Chamoin),
- Master: Problèmes multi-échelles, 24h, M2, Paris 6 (F. Legoll),
- Master: Approximation numérique et optimisation, 32h, École Polytechnique (E. Cancès) ,
- Master: Analyse variationnelle des équations aux dérivées partielles, 32h, École Polytechnique (E. Cancès) ,
- Master: Méthodes variationnelles et théorie spectrale, 10h, M2, Paris 6 (E. Cancès),
- Master: Modélisation mathématique des vagues, 3h, École des Ponts (S. Boyaval),
- Master: Outils Probabilistes pour la Finance, 25h, M1, École des Ponts, France (M. Rousset),
- Master: Analyse Spectrale, 39h, École des Ponts (V. Ehrlacher, A. Levitt),
- Master: Projets de physique, 10h, M1, École des Ponts, France (V. Erhlacher, G. Stoltz),
- Master: Introduction au calcul Scientifique, 13h, M1, École des Mines, France (G. Stoltz, F. Madiot),
- Master: Introduction to computational statistical physics, 20h, M2, Paris 6 (G. Stoltz),
- Master: Modéliser Programmer Simuler, 28 h, M1, Cours École des Ponts (T. Lelièvre),
- Master: Méthodes numériques probabilistes, 36 h, M2 Mathématiques et Applications, Paris 6 (T. Lelièvre).

The following PhD theses have been defended:

- David Gontier, Contributions mathématiques aux calculs de structures électroniques, Université Paris Est, September 28 2015 (supervised by E. Cancès),
- William Minvielle, Quelques problèmes liés à l'erreur statistique en homogénéisation stochastique, Université Paris-Est, Université Paris Est, September 25 2015 (supervised by C. Le Bris and F. Legoll).

The following PhD theses are ongoing:

- Athmane Bakhta, Modélisation and simulation for photovoltaic applications, Université Paris-Est, École des Ponts , started October 1st, 2014, supervised by E. Cancès and T. Lelièvre, co-supervised by V. Ehrlacher,
- Gerome Faure, Multiscale methods for the simulation of shock and detonation waves, Université Paris-Est, École des Ponts and CEA/DAM, started November 1st 2014, supervised by G. Stoltz and J.-B. Maillet,
- Ahmed-Amine Homman, Multiscale methods for the simulation of shock and detonation waves, Université Paris-Est, École des Ponts and CEA/DAM, started April 1st, 2013, supervised by G. Stoltz and J.-B. Maillet,
- Marc Josien, Multiscale approaches for materials science, started September 1st, 2015, supervised by C. Le Bris,
- François Madiot, Multiscale finite element methods for advection diffusion problems, Université Paris-Est, Ecole des Ponts ParisTech, started October 1st, 2013, supervised by C. Le Bris and F. Legoll,
- Boris Nectoux, Métastabilité et distribution quasi-stationnaire, since November 2014, supervised by T. Lelièvre and E. Cancès,
- Julien Roussel, Variance reduction techniques for nonequilibrium systems, Université Paris-Est, École des Ponts , started September 1st 2015, supervised by G. Stoltz,
- Rémi Sainct, Modèles multi-échelles pour le trafic, since September 2013, supervised by T. Lelièvre and X. Louis,
- Pierre Terrier, Reduced models for defect migration in metals, Université Paris-Est, École des Ponts and CEA Saclay, started September 1st 2015, supervised by G. Stoltz and M. Athènes,
- Zofia Trstanova, A mathematical analysis of some importance sampling strategies in molecular dynamics, Université Joseph Fourier and Inria Grenoble, started June 1st 2013, supervised by S. Redon and G. Stoltz.

Project-team members have participated in the following PhD juries:

- E. Cancès was a member (as referee) of the PhD committee of B. Pawilowski (Rennes, Dec. 2015), supervised by F. Nier and N. Mauser.
- F. Legoll was a member (as the opponent) of the PhD committee of D. Elfverson (Univ. Uppsala, Oct. 2015), supervised by A. Malqvist.
- F. Legoll was a member of the PhD committee of M. Capaldo (LMT, ENS Cachan, Nov. 2015), supervised by P. Ladevèze and D. Néron.
- T. Lelièvre was a member (as referee) of the PhD committee of C. Vergé (École Polytechnique, July 2015), supervised by P. Del Moral.
- T. Lelièvre was a member (as referee) of the PhD committee of D. Lesnicki (Paris 6, Sep. 2015), supervised by R. Vuilleumier.
- T. Lelièvre was a member of the PhD committee of O. Zahm (École Centrale de Nantes, Nov. 2015), supervised by A. Zouy.
- T. Lelièvre was a member (as referee) of the HDR commitee of J. Tugaut (Dec. 2015, Saint-Étienne).

9.3. Conference participation

Members of the project-team have delivered lectures in the following seminars, workshops and international conferences:

- S. Boyaval, Atelier EDPs stochastiques à Marseilles, June 2015,
- S. Boyaval, Séminaire mathématiques appliquées à Université Versailles Saint-Quentin en Yvelines, October 2015,
- E. Cancès, workshop on Fundamental Aspects of DFT, Oslo, Norway, January 2015,
- E. Cancès, GDR Dynqua Conference on Mathematical Physics, Nantes, France, February 2015,
- E. Cancès, Weekly seminar, ONERA, France, April 2015,
- E. Cancès, distinguished lecture series "Adventures in Theory", Duke University, USA, April 2015,
- E. Cancès, Weekly seminar of the mathematics department, Duke University, USA, April 2015,
- E. Cancès, Weekly seminar of the mathematics department, Michigan State University, Lansing, USA, May 2015,
- E. Cancès, IPAM workshop on materials for a sustainable energy future, Lake Arrowhead, USA, June 2015,
- E. Cancès, SFB conference on Discretization in Geometry and Dynamics, Herrsching am Ammersee, Germany, October 2015
- E. Cancès, Weekly seminar of the mathematics department, University of Metz, France, October 2015,
- E. Cancès, Weekly seminar of the JL Lions laboratory, Paris, France, October 2015,
- L. Chamoin, Séminaire de l'IMT, Toulouse, January 2015,
- L. Chamoin, Séminaire Aristote, École Polytechnique, Palaiseau, February 2015,
- L. Chamoin, 12ième Colloque National en Calcul des Structures, Giens, May 2015,
- L. Chamoin, International conference on Adaptive Modeling and Simulation (ADMOS), Nantes, June 2015,
- L. Chamoin, YIC GACM 2015 (3rd ECCOMAS Young Investigators Conference), Aachen, July 2015,
- L. Chamoin, US National Congress on Computational Mechanics, San Diego, July 2015,
- L. Chamoin, MORE workshop on model reduction, Pilsen, September 2015,
- L. Chamoin, Séminaire de l'équipe-projet POEMS, Palaiseau, December 2015,
- V. Ehrlacher, HIM Workshop: "Gradient flows and entropy methods", Bonn, Germany, February 2015,
- V. Ehrlacher, SIAM CSE 2015, Salt Lake City, USA, March 2015,
- V. Ehrlacher, MSME seminar, Université Marne-la-Vallée, March 2015,
- V. Ehrlacher, MOKAPLAN seminar group, Université Paris-Dauphine, March 2015,
- V. Ehrlacher, Séminaire du groupe de travail "Mécanique des fluides réels", ENS Cachan, May 2015,
- V. Ehrlacher, Séminaire du CMAP, École Polytechnique, Juin 2015,
- V. Ehrlacher, IPAM Workshop on Materials Defects: Mathematics, Computation and Engineering, Lake Arrowhead, USA, June 2015,
- V. Ehrlacher, Numerical Analysis Conference, University of Strathclyde, Glasgow, Great Britain, June 2015,
- V. Ehrlacher, USNCCM 13, San Diego, USA, July 2015,

- V. Ehrlacher, Seminar of the Theoretical Chemistry Group, Johannes Gutenberg Universität, Mainz, Germany, October 2015,
- V. Ehrlacher, 3rd MOKALIEN Meeting, Université Paris-Dauphine, November 2015,
- D. Gontier, workshop on Fundamental Aspects of DFT, Oslo, Norway, January 2015,
- D. Gontier, Oberwolfach workshop Mathematical Methods in Quantum Molecular Dynamics, Germany, June 2015,
- D. Gontier, Nonlinear equations seminar, University Paris 13, November 2015,
- T. Hudson, Workshop on "Analytic approaches to scaling limits for random system", Bonn, January 2015,
- T. Hudson, US National Congress on Computational Mechanics, San Diego, July 2015,
- T. Hudson, ICIAM conference, Beijing, August 2015,
- C. Le Bris, PIRE Workshop, "Design of materials: From grain boundaries to stochastic homogenization", Leipzig, July 2015,
- C. Le Bris, International conference on numerical mathematics and scientific computing, Nanjing (China), August 2015,
- D. Le Peutrec, Séminaire ANEDP au LMO, Université Paris-Sud, 2015,
- D. Le Peutrec, Séminaire Spectral problems in mathematical physics à l'IHP, Paris, 2015,
- D. Le Peutrec, Séminaire EDP à l'IRMAR, Université Rennes 1, 2015,
- F. Legoll, Journées annuelles du GdR ModMat, Lyon, January 2015,
- F. Legoll, Euromech Colloquium on "Multiscale Computational Methods for bridging scales in materials and structures", Eindhoven, February 2015,
- F. Legoll, Workshop "Dimension reduction: mathematical methods and applications", Penn State University, March 2015,
- F. Legoll, Reunion Conference of the Materials Defects IPAM program, Los Angeles, June 2015,
- F. Legoll, Equadiff Conference, Lyon, July 2015,
- F. Legoll, BIRS workshop on "Free-energy calculations: a mathematical perspective", Oaxaca, July 2015,
- F. Legoll, BIRS workshop on "Developments in the Theory of Homogenization", Banff, July 2015,
- F. Legoll, Workshop on "Multiscale Modeling and Analysis in Materials Science", Shanghai, August 2015,
- F. Legoll, ICIAM conference, Beijing, August 2015,
- F. Legoll, SciCADE conference, Potsdam, September 2015,
- F. Legoll, Colloque "Mathématiques appliquées et nanoélectronique", Grenoble, September 2015,
- F. Legoll, Weekly seminar of Numerical Analysis, KTH, Stockholm, October 2015,
- F. Legoll, Workshop "Reduced Basis, POD and PGD Model Reduction Techniques", ENS Cachan, November 2015,
- F. Legoll, Workshop "Gradient flows, Large deviations and Applications", Eindhoven, November 2015,
- F. Legoll, Journée EDP – Probas "Homogénéisation aléatoire", Paris, December 2015,
- F. Legoll, Journées NEEDS – Milieux Poreux, Paris, December 2015,
- T. Lelièvre, Workshop "New Discretization Methods for the Numerical Approximation of PDEs", Oberwolfach, January 2015,
- T. Lelièvre, Séminaire transversal MSME, Paris, January 2015,
- T. Lelièvre, Séminaire Collège de France, January 2015,

- T. Lelièvre, HIM workshop "Analytic approaches to scaling limits for random system", Bonn, January 2015,
- T. Lelièvre, Maxwell mini-symposium, Analysis and its applications, April 2015,
- T. Lelièvre, ADMOS, Nantes, June 2015,
- T. Lelièvre, PASC15, Zurich, June 2015,
- T. Lelièvre, Workshop "Statistical mechanics and computation of large deviation rate functions", Lyon, June 2015,
- T. Lelièvre, Workshop "Probabilistic numerical methods for non-linear PDEs", Imperial College London, July 2015,
- T. Lelièvre, MCM 2015, Linz, July 2015,
- T. Lelièvre, Workshop "Free-energy calculations: A mathematical perspective", BIRS Oaxaca, July 2015,
- T. Lelièvre, CRiSM Workshop "Non reversible dynamics", Warwick, September 2015,
- T. Lelièvre, Scicade 2015, Potsdam, September 2015,
- T. Lelièvre, Set-Oriented Numerics, Imperial College London, September 2015,
- T. Lelièvre, Séminaire de probabilités LJK, Grenoble, November 2015,
- T. Lelièvre, Séminaire analyse numérique, Orsay, November 2015,
- T. Lelièvre, Workshop "Predictive multiscale materials modelling, Cambridge, December 2015,
- T. Lelièvre, Workshop "Mathematical challenges in drug and protein design", MBI Columbus, December 2015,
- S. Lemaire, Workshop on "High order methods on polyhedral meshes", Milano, February 2015,
- S. Lemaire, PANACM conference, Buenos Aires, April 2015,
- S. Lemaire, Weekly seminar of the ANMC group, EPFL, June 2015,
- S. Lemaire, Congrès SMAI 2015, June 2015,
- F. Madiot, Congrès SMAI 2015, June 2015,
- F. Madiot, ICIAM conference, Beijing, August 2015,
- W. Minvielle, Workshop on "Analytic approaches to scaling limits for random system", Bonn, January 2015,
- W. Minvielle, International conference on Adaptive Modeling and Simulation (ADMOS), Nantes, June 2015,
- W. Minvielle, Equadiff Conference, Lyon, July 2015,
- M. Rousset, IRMAR Probability Seminar, Rennes, November 2015,
- M. Rousset, LPMA Probability Seminar, Paris, May 2015,
- M. Rousset, LATP Proba-EDP GdT, Marseille, February 2015,
- G. Stoltz, workshop "Analytic approaches to scaling limits for random systems", Bonn, January 2015,
- G. Stoltz, workshop "Progress in nonequilibrium statistical mechanics", Nice, France, June 2015,
- G. Stoltz, workshop "Free-energy calculations. A mathematical perspective", Oaxaca, Mexico, July 2015,
- G. Stoltz, workshop NASPDE 2015, Sophia-Antiopolis, France, September 2015,
- G. Stoltz, program "Nonequilibrium Statistical Physics 2015", Bangalore, India, November 2015,
- G. Stoltz, meeting of the GdR ISIS, Paris, November 2015,
- G. Stoltz, workshop "Challenges in statistical mechanics: from mathematics to molecular dynamics to technological applications", London, December 2015.

Members of the project-team have delivered the following series of lectures:

- E. Cancès, Winter School on Computational and Mathematical Methods for Materials Defects and Multiphase Flows, 4h, Singapore, February 2015,
- E. Cancès, International summer School in electronic structure Theory: electron correlation in Physics and Chemistry, 2h, Aussois, France, June 2015,
- E. Cancès and T. Lelièvre, ICS summer school on Computational Chemistry and Applied Mathematics, 10h, Roscoff, France, July 15-August 14, 2015.

Members of the project-team have presented posters in the following seminars, workshops and international conferences:

- F. Madiot, Séminaire CEA GAMNI 2015, Paris, February. 2015

Members of the project-team have participated (without giving talks nor presenting posters) in the following seminars, workshops and international conferences:

- E. Cancès, Oberwolfach workshop on Mathematical Methods in Quantum Molecular Dynamics, Germany, June 2015,
- D. Gontier, GDR DYNamique QUAntique, Nantes, February 2015,
- D. Gontier, XVIII International Congress on Mathematical Physics, Santiago, July 2015,
- D. Gontier, Summer School on Current Topics in Mathematical Physics, Valparaiso, August 2015,
- M. Josien, PIRE Workshop, "Design of materials: From grain boundaries to stochastic homogenization", Leipzig, July 2015
- M. Josien, BIRS workshop on "Developments in the Theory of Homogenization", Banff, July 2015
- F. Madiot, École de Mécanique des Fluides Numérique 2015, Porquerolles, June 2015
- J. Roussel, Oberwolfach workshop on Mathematical Methods in Quantum Molecular Dynamics, Germany, June 2015
- J. Roussel, Non-equilibrium simulation school, Sheffield, September 2015,
- J. Roussel, Numerical Analysis of Stochastic Partial Differential Equations, Sofia-Antipolis, September 2015,
- J. Roussel, Non-equilibrium statistical physics, Bangalore, Octobre 2015,
- G. Stoltz, Oberwolfach workshop on Mathematical Methods in Quantum Molecular Dynamics, Germany, June 2015.

MEMPHIS Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific events organisation

10.1.1.1. Member of the organizing committees

Organization of the Scientific Day of the team "Modelling and Scientific Computing" of the Mathematics Institute of Bordeaux.

With Frédéric Gibou we have organized an international workshop in Santa Barbara funded by the Idex initiative in Bordeaux. The topics of the workshop were about our common research subjects: hierarchical Cartesian meshes and monolithic models: multi-resolution schemes based on octree grid structures, refined grid patches, numerical zooms, overset.

Charles-Henri Bruneau is in the organizing commettee of ICCFD conference, a major conference in CFD.

10.1.2. Journal

10.1.2.1. Member of the editorial boards

Angelo Iollo is in the advisory board of Acta Mechanica.

10.1.2.2. Reviewer - Reviewing activities

- projects CSCS Swiss National Supercomputing Centre
- reviews of applications for PhD and Postdoc grants at Inria (commission jeunes chercheurs)
- journals: Journal of Computational Physics, International Journal of CFD, Journal of Non-linear Analysis B, ASME Journal of Computational and Nonlinear Dynamics, Journal of Fluid Mechanics, Acta Mechanica, AIAA Journal, International Journal Numerical Methods in Fluids, Computers & Fluids, Journal of Engineering Mathematics, European Journal of Mechanics / B Fluids, Journal Européen de Systèmes Automatisés, Applied Mathematics and Computation. Nuclear Science and Engineering, Computer Methods in Applied Mechanics and Engineering, Journal of Theoretical Biology, Computational Optimization and Applications. Applied science, Meccanica.

10.1.3. Invited talks

Invited seminars at Institut Montpelliérain Alexander Grothendieck, Ecole Centrale Nantes, Laboratoire de Mathématiques et Applications de Poitiers, Laboratoire de Mathématiques d'Orsay, Florence University .

10.1.4. Leadership within the scientific community

Angelo Iollo is responsible of the scientific policy of the scientific computing departement of the LabEx CPU. This departement gathers 60 researhers of the math lab IMB, of the computer science lab LaBRI, of the mecanichs lab I2M and of the CEA.

10.1.5. Scientific expertise

Angelo Iollo has been reviewer of the PhD defense « Modélisation numérique du vol inspiré à la biologie » of Thomas Engels, TU Berlin et Université Aix-Marseille, 12/12/2015. Also he is scientific reviewer for ANR (1 project) and the Romanian Research Agency (8 projects).

Michel Bergmann has a reviewing activity for the CSCS Swiss National Supercomputing Center. He is also member of the Inria Young Researchers Commission, which allocates PhD and Postdoc grants.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Four members of the team are Professors or Assistant Professors at Bordeaux University and have a teaching duty, which consists in courses and practical exercises in numerical analysis and scientific computing.

E-learning

Online course on the Moodle webpage of Bordeaux University, 13 weeks, licence 2, Differential equations, Lisl Weynans, 5 students registered.

10.2.2. Supervision

In case of co-supervision, the name of the concerned student/postdoc is mentionned twice.

Michel Bergmann:

- PhD students:
  - Alice Raeli (cpu)
  - Federico Tesser (inria)
  - Claire Morel (valeol)
  - Baptiste Lambert (univ. Bordeaux)
- Postdoc:
  - Andrea Ferrero (Aerogust)

Afaf Bouharguane

- Research Engineer: Andrea Valenti (cpu)

Charles-Henri Bruneau

- PhD student: Meriem Jedouaa (co-tutelle Grenoble Emmanuel Maitre)

Angelo Iollo:

- PhD students:
  - Alice Raeli (cpu)
  - Federico Tesser (inria)
  - Claire Morel (valeol)
  - Emanuela Abbate (univ. Insubria)
  - Mathias Braun (univ. Insubria)
- Postdoc:
  - Andrea Ferrero (Aerogust)
- Research Engineers:
  - Marco Cisternino (cpu)
  - Florian Bernard (Inria)
  - Andrea Valenti (CPU)
- Master: Nadia Loy (univ/ Florence)

Lisl Weynans

- PhD student:Baptiste Lambert (univ. Bordeaux)
- Research Engineers:Marco Cisternino (CPU)

2012-2015. Dr. Alexia de Brauer. Compressible Materials Simulations. Codirectors A. Iollo and T. Milcent. DGA Grant. University of Bordeaux.

2012-2015. Dr. Gwladys Ravon. Inverse Problems in Cardiac Electrophysiology. Codirectors A. Iollo, Y. Coudiere. Idex and IHU Grant. University of Bordeaux.

2012-2015. Dr. Florian Bernard. Efficient Asymptotic Preserving Schemes for BGK and ES-BGK models on Cartesian grids. Codirectors A. Iollo and G. Puppo. University of Bordeaux and Politecnico di Torino. Grant from the Politecnico di Torino.

10.2.3. Juries

Participation to hiring comittees ("comités de sélection"): Ecole Centrale de Nantes, I2M laboratory at Bordeaux University.

Participation to PhD defence juries: C.-H. Bruneau for Eysteinn Helgason (Chalmers, Sweden), L. Weynans for Pierre Bigay (Ecole Centrale Nantes)

10.3. Popularization

One member of the team (Lisl Weynans) is in charge of the communication with secondary degree for the Mathematics Institute.

Participation popularization operations, such as: "Fête de la Science", "Des enseignants dans les labos", "Le printemps de la mixité", and several talks in high schools to popularize scientific computing.

Pedagogic project with an high in rural area about statistics: the PARADOX project, awarded by a grant from the fundation "Sciences à l'école".

MEPHYSTO Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. General chair, scientific chair

Denis Bonheure was General chair of the committee of the workshop in nonlinear PDEs in Brussels from Sept. 7 to 11 2015.

9.1.1.2. Member of the organizing committees

Antoine Gloria and Scott Armstrong organized a minisymposium on stochastic homogenization at the EQUADIFF'15 conference held in Lyon in July.

D. Bonheure and A. Gloria organize a PDE and analysis seminar at Brussels (http://homepages.ulb.ac.be/~dbonheur/seminaire-ANEDP.html).

9.1.2. Journal

9.1.2.1. Member of the editorial boards

D. Bonheure is associate editor at the Bulletin of the Belgian Mathematical Society - Simon Stevin (http://projecteuclid.org/DPubS?service=UI&version=1.0&verb=Display&handle=euclid.bbms) and International Scholarly Research Notices (http://www.hindawi.com/journals/isrn/).

Antoine Gloria is editor at the Northwestern European Journal of Mathematics.

9.1.2.2. Reviewer - Reviewing activities

The members of the team review articles for many journals on a regular basis.

9.1.3. Invited talks

Denis Bonheure was invited speaker at

- 1st Joint Meeting Brazil-Spain in Mathematics, Universidade Federal do Ceara, Brazil, December
- Variational and Topological methods in the study of nonlinear problems, Besançon, June
- Unplugged in PDE's, Sapienza di Roma, June
- AMS-EMS-SPM International Meeting in Porto, June
- Workshop in PDE's, Calais, May
- Nonlinear elliptic PDEs at the End of the World Congress, Universidad de Magallanes, Punta Arenas - Chile, March
- Xth Americas Conference on Differential Equations and Nonlinear Analysis, Universidad de Buenos Aires, February
- Karlsruhe, seminar of Nonlinear PDE, October
- Karlsruhe, Colloquium of the Collaborative Research Centre on wave phenomena, October
- Santiago de Chile, Seminar of the Center for Analysis and Partial Differential Equations, October
- Instituto Superior Tecnico de Lisboa, Departamento de Matematica, June
- TU Delft, Analysis seminar, June
- Université de Lorraine, Séminaire d'Analyse et EDP de l'Institut Elie Cartan, June
- Université de Aix-Marseilles, Séminaire d'Analyse Appliqué du Laboratoire d'Analyse,Topologie, Probabilités UMR 7353, May
- Lille 1, Séminaire Analyse Numérique - Equations aux Dérivées Partielles, January

Stephan De Bièvre was invited speaker at

- Colloquium bisontin sur les EDPs dispersives et problèmes liés, Besançon, January.

Mitia Duerinckx was invited speaker at

- Numerical analysis and PDE seminar at the Université Lille 1, March
- Minisymposium on Stochastic Homogenization at the conference EquaDiff 2015 in Lyon, July.

Antoine Gloria was invited speaker at

- BelPRO conference on probability, Liège, January;
- PDE seminar, Université de Nice, March;
- AMS-EMS-SPM international meeting in Porto, June;
- Workshop on stochastic homogenization, Banff research center, August;
- Workshop on the calculus of variations, Lille, October;
- Séminaire EDP-Proba, IHP, Paris, December.

Christopher Shirley was invited speaker at

- Workshop on Spectra of Random Operators and Related Topics, Keio University, Yokohama.

9.1.4. Leadership within the scientific community

Denis Bonheure is member of the Executive board of the Belgian Mathematical Society.

Stephan De Bièvre is

- the scientific coordinator of the CEMPI,
- member of the drafting committee of the IDEX UDL, and of the delegation that presented the pre-project to the jury in Paris (April 2015),
- member of the Executive Committee of International Association of Mathematical Physics (since 2012).

9.1.5. Scientific expertise

Denis Bonheure is a member of the European Science Foundation panel elected by the Fundação para a Ciência e a Tecnologia for the evaluation of the research centers in Portugal for the period 2015-2020.

Guillaume Dujardin is an elected member of the Commission d'Evaluation of Inria (since 2015).

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence

Guillaume Dujardin, Integral and differential calculus, 60h, L2 (mathematics & physics), Université Libre de Bruxelles

Stephan De Bièvre, Probability, 15h, L2 (physics), Université Lille 1

Stephan De Bièvre, Applied mathematics, 30h, L2 (physics), Université Lille 1

Stephan De Bièvre, Probability, 50h, L3 (mathematics), Université Lille 1

Master

Antoine Gloria, Elliptic regularity theory, 30h, M2, Université Libre de Bruxelles

Doctorat

Christopher Shirley, Decorrelation estimates for random operators, 4h, Gakushuin University, Tokyo

9.2.2. Supervision

PhD supervision in the team:

PhD : Emilie Soret, Stochastic acceleration in an inelastic Lorentz gaz, Université Lille 1, June 30th 2015, Stephan De Bièvre & Thomas Simon (Lille 1)

PhD in progress : Mitia Duerinckx, Qualitative and quantitative aspects in stochastic homogenization of some PDEs, September 2014, Antoine Gloria & Sylvia Serfaty (Paris 6)

PhD supervision outside the team:

PhD : Manon Nys, Schrödinger equations with an external magnetic field: spectral problems & semiclassical states, Université Libre de Bruxelles and Università di Milano-Bicocca, September 11th 2015, Denis Bonheure (ULB) & Susanna Terracini (Torino)

PhD : Isabel Coelho, Boundary Value Problems for Some Curvature Operators, Université Libre de Bruxelles, June 20th 2015, Denis Bonheure (ULB)

9.2.3. Juries

Denis Bonheure was member of the jury of the PhD defence of Thuy Lien Nguyen (Université de Toulouse III - Paul Sabatier).

Antoine Gloria was in the jury of the PhD defences of Emilie Soret and Manon Nys.

Stephan De Bièvre was in the HDR jury of Dominique Spehner (April 2015, Institut Fourier, Grenoble).

MOKAPLAN Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. General chair, scientific chair

Q. Mérigot was chair of the annual SMAI-Sigma meeting in Paris (2 Nov 2015)?

G. Peyré is the chair of the conference SIGMA 2016 (https://www.ceremade.dauphine.fr/~peyre/sigma2016/).

9.1.1.2. Member of the organizing committees

G. Peyré is in the organizing committee of Mathematics and Image Analysis MIA'16 (https://fadili.users.greyc.fr/mia/events/fgmia-16/).

9.1.2. Scientific events selection

9.1.2.1. Chair of conference program committees

G. Peyré is in the conference program committees of CANUM 2016 (http://smai.emath.fr/canum2016/).

9.1.2.2. Member of the conference program committees

Q. Mérigot and G. Peyré were part of the program committee of Geometric Science of Information 2015

G. Carlier was member of the Scientific Committee of SMAI-2015.

9.1.2.3. Reviewer

G. Peyré is reviewer for conferences in machine learning (ICML, NIPS) and computer graphics (SIGGRAPH).

V. Duval has reviewed several contributions to the conferences GRETSI, CAMSAP, SSVM, SPARS.

Q. Mérigot has reviewed for Symposium on Computational Geometry (SoCG), Symposium on the theory of computational (STOC).

9.1.3. Journal

9.1.3.1. Member of the editorial board

Guillaume carlier is member of the editorial Board of "Journal de l'Ecole Polytechnique" and co-editor of "Mathematics and Financial Economics".

G. Peyré associate editor for SIAM Journal on Imaging Sciences and Journal of Mathematical Imaging and Vision (Springer).

9.1.3.2. Reviewer

The members of the team are frequently reviewing papers in SIIMS (SIAM Journal on Imaging Sciences), JMAA (Journal of Mathematical Analysis and Applications), IPol (Image Processing Online), JVCI (Journal of Visual Communication and Image Representation), COCV, M2AN ... Discrete and computational geometry, Journal of the London Math Society, JOTA, JCP, "Information and Inference: A Journal of the IMA", JMIV, Optimization Letters, PAMI, SIAM optimization and control ...

9.1.4. Invited talks

V. Duval has given invited talks at the Séminaire de Mathématique Appliquée au Traitement d'Image (Télécom ParisTech & Université Paris-Descartes), Journée Traitement d'Images du projet M2NUM du GRR LMN (INSA Rouen), and Mokameetings (Inria & Université Paris-Dauphine).

Q. Mérigot: Séminaire parisien de géométrie algorithmique, Paris (décembre 2015) ; Applied PDEs Seminar, Imperial College, Londres (décembre 2015), Convexity, Probability and Discrete Structures, Marne-la-vallée (octobre 2015) ; Journée thématique transport optimal et applications, Bordeaux (octobre 2015) ; Mini-symposium on gradients flow , SciCADE conference, Potsdam (september 2015) ; Geometric Computing Group Seminar, Stanford University (février 2015)

F-X. Vialard was invited at to give talks at: Semester on Riemannian geometry in infinite dimension in Vienna, Semester on geometric mechanics and stochastics at EPFL, Math on the Rocks conference, Séminaire d'analyse at University Paris 11.

9.1.5. Scientific expertise

The members of the team are frequently reviewing and evaluating ANR projects.

G. Peyré was in the 2015 recruitement comittees in Nice Univ. (Proffessor in analysis) and Paris-Dauphine (Maitre de Conference in statistics).

G. Carlier was in the AERES visiting comitee at Université du Havre.

Q. Mérigot participated to the secion comitee MCF 26 at Paris 6.

F-X. Vialard was reviewer for the DFG RSF grant proposal (Russian-German cooperation grant).

9.1.6. Research administration

J-D. Benamou is a member of Inria-Paris Restaurant comittee.

J-D. Benamou is an elected member of the Academic council of PSL.

G. Peyré is in the scientific advisory committee of "Fondation Sciences Mathématiques de Paris" and in the scientific advisory committee of the Ceremade laboratory, University Paris-Dauphine.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Q. Mérigot teaches Analyse convexe approfondie, 50h equivalent TD, Univ. Paris Dauphine

teaches two courses on "Sparsity and Compressed Sensing" and "Deformable Models and Geodesic Methods" in Master 2 MVA ENS Cachan, France. Gabriel Peyré teaches a pre-doctoral course “image and surface processing” in PSL* University network.

9.2.2. Supervision

PhD : Roméo Hatchi, intitule , Université Paris 9 Dauphine, december 2015, G. Carlier

PhD : Julien André, These CIFRE avec l'entreprise OPTIS Grenoble-INP (co-direction D. Attali, B. Thibert, Q. Mérigot)

PhD in progress : Jocelyn Meyron, lED de Grenoble, Q. Mérigot, D. Attali and B. Thibert.

PhD in progress : Lenaic Chizat, intitule , october 2014, F-X. Vialard and G. Peyré.

PhD in progress : Aude Genevay, intitule , october 2015, J-D. Benamou and G. Peyré.

PhD in progress : Luca Nenna, intitule , october 2013, J-D. Benamou and G. Carlier.

PhD in progress : Jonathan Vacher, Machine learning approaches for neurosciences of the visual brain, October 2013, G. Peyré and Y. Fregnac.

PhD in progress : Quentin Denoyelle, *Analyse théorique et numérique de la super-résolution sans grille*, October 2014, G. Peyré and V. Duval.

Postdoc in progress : Clarice Poon, *Support recovery using total variation and others sparse priors*, September 2015, G. Peyré and V. Duval.

Postdoc in progress: Dario Prandi, sub-Riemannian model for imaging, Oct. 2015, G. Peyré and J-M Mirebeau

Postdoc in progress: Bernhard Schmitzer, fast algorithms for optimal transport, Oct. 2014, G. Peyré.

Postdoc in progress: Thomas Gallouèt, Fluid model and optimal transport, Oct. 2015, Q. Mérigot and yann Brenier.

Postdoc in progress: Roman Andreev, Numerical Methods for Mean Field Games , Mai 2015, Yves Achdou anf J-D. Benamou.

9.2.3. Juries

J-D. Benamou and G. Carlier were in the Ph.D. committee of Roméo Hatchi (Paris 9, december 2015) and G. Carlier was referee for the Ph.D of A. Meszaros (Paris Sud Orsay).

Gabriel Peyré was PhD reviewer of Yi-Qing Wang (Cachan, mars 2015), Laurent Gajny (Lille, avril 2015), Arthur Leclaire (Paris, juin 2015), Nicolas Chauffert (Toulouse, Sept. 2015), Matthieu Toutain (Nice, Dec. 2015).

Gabriel Peyré was habilitation reviewer of Boris Thibert (Grenoble, June 2015), Marianne Clausel (Grenoble, Sep. 2015).

Gabriel Peyré was in the PhD comitees of Solène Ozeré (Rouen, Dec. 2015)

9.3. Popularization

G. Carlier gave a general audience lecture on mathematics of urban traffic at the Consulat de France in Vancouver.

NACHOS Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific events organisation

8.1.1.1. Member of the organizing committees

Claire Scheid and David Chiron (University of Nice - Sophia Antipolis) co-organized of the conference entitled "IDTPsi: Theory and Numerics" around Schrödinger equations, J.A. Dieudonné Laboratory, University of Nice - Sophia Antipolis, January 12-14, 2015.

Peter Bastian (Interdisziplinäres Zentrum für Wissenschaftliches Rechnen Universität Heidelberg) and Stéphane Lanteri have co-organized a mini-symposium on "Recent advances on scalable high order finite element type schemes for PDEs" in the framework of the Platform for Advanced Scientific Computing (PASC15), ETH Zurich, Switzerland, June 1-3, 2015.

Marcus Grote (Mathematisches Institut - Universität Basel) and Stéphane Lanteri have co-organized a mini-symposium on "Advanced time-stepping methods for wave propagation" in the framework of the International Conference on Scientific Computation And Differential Equations (SciCADE 2015), University of Potsdam, Germany, September 14-18, 2015.

8.1.2. Invited talks

Claire Scheid, “Etude numérique de modèles milieux dispersifs et application en nanophotonique”, Analyse Numérique et EDP seminar, Laboratoire de Mathématiques d’Orsay, March 12, 2015.

Claire Scheid, “Numerical study of dispersive media and application to nanophotonics”, KIT Seminar, Karlsruhe, Germany, Frebruary 9, 2015

Stéphane Descombes, “Locally implicit and implicit discontinuous Galerkin time domain method for electromagnetic wave propagation in dispersive media”, Numerical Solution of Differential and Differential-Algebraic Equations (Numdiff-14), Martin Luther University Halle-Wittenberg, Germany, September 7-11, 2015.

Stéphane Lanteri, “Numerical modeling of light/matter interaction on the nanoscale with a high order finite element type time-domain solver”, Annual meeting of GDR PMSE (Plasmonique Moléculaire et Spectroscopies Exaltées), Inria Paris-Rocquencourt, November 25-27, 2015.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Stéphane Descombes is the head of the mathematical department of the faculty of sciences at the University of Nice-Sophia Antipolis. He is responsible of the managment of all mathematical courses (around 13 000 hours/year), and especially of the M2 *Computational Biology*.

Stéphane Descombes, *Scientific computing*, M1, 18 h, University of Nice-Sophia Antipolis.

Stéphane Descombes, *Principal components analysis*, M2, 30 h, University of Nice-Sophia Antipolis.

Stéphane Descombes, *Statistics*, M2, 30 h, University of Nice-Sophia Antipolis.

Stéphane Lanteri, *Computational electromagnetics*, MAM5, 20 h, Polytech Nice.

Claire Scheid, *Practical works on ordinary differential equations*, 36 h, L3, University of Nice-Sophia Antipolis.

Claire Scheid, *Lectures and practical works, Analysis*, "Agrégation", 22h, University of Nice Sophia Antipolis.

Claire Scheid, *Lectures and practical works in Numerical Analysis*, 36 h, M1, Mathematics engineering, University of Nice-Sophia Antipolis.

Claire Scheid, *Lectures and practical works, Option*, "Agrégation", 16h, University of Nice Sophia Antipolis.

8.2.2. Supervision

PhD defended in December 2015: Marie Bonnasse, *Numerical simulation of frequency domain elastic and viscoelastic wave propagation using discontinuous Galerkin methods*, University of Nice-Sophia Antipolis, October 2012, Julien Diaz (MAGIQUE3D project-team, Inria Bordeaux - Sud-Ouest) and Stéphane Lanteri.

PhD defended in December 2015: Jonathan Viquerat, *Discontinuous Galerkin Time-Domain methods for nanophotonics applications*, October 2012, Stéphane Lanteri and Claire Scheid.

PhD in progress: Fabien Peyrusse, *Numerical simulation of strong earthquakes by a discontinuous Galerkin method*, University of Nice-Sophia Antipolis, October 2010, Nathalie Glinsky and Stéphane Lanteri.

PhD in progress: Colin Vo Cing Tri, *Numerical modeling of non-local dispersion for plasmonic nanostructures*, November 2014, Stéphane Lanteri and Claire Scheid.

PhD in progress: Nikolai Schmitt, *Numerical modeling of electron beam interaction with nanostructures*, October 2015, Stéphane Lanteri.

PhD in progress: Van Hieu Nguyen, *SMART-RATS: Small Animals RFID Integrated Antenna Tracking System*, october 2015, Philippe Lethuc (University of Nice-Sophia Antipolis and LEAT) and Stéphane Lanteri.

NANO-D Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. Member of the organizing committees

Stephane Redon is a member of the organizing committee of JOBIM 2016

9.1.2. Scientific events selection

9.1.2.1. Reviewer

- Leonard Jaillet was a reviewer ISRR (International Symposium on Robotics Research)

9.1.3. Journal

9.1.3.1. Reviewer - Reviewing activities

- Leonard Jaillet was a reviewer for T-RO (Transactions on Robotics)

9.1.4. Invited talks

- S. Grudinin gave an invited talk titled "Using Machine Learning and Polynomial Expansions to Predict Protein-Protein Interactions " at the 3rd International Conference on Protein and RNA Structure Prediction, 14th - 18th of December 2015, at Punta Cana, Dominican Republic.
- Stephane Redon gave a talk at IMPMC.
- Stephane Redon gave a talk at TEDx Grenoble 2015

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

- Stephane Redon is teaching INF585 (Introduction to C++) at Ecole polytechnique
- Stephane Redon is part of the teaching team of INF442 (Big data and high-performance computing) at Ecole polytechnique

9.2.2. Supervision

- Leonard Jaillet is advising the PhD of Minh Khoa Nguyen
- Sergei Grudinin is advising the PhD of Alexandre Hoffmann
- Sergei Grudinin advised the PhD of Petr Popov (defended February 2015)
- Stephane Redon is co-advising the PhD of Krishna Kant Singh in collaboration with Jean-Francois Mehaut
- Stephane Redon is advising the PhD of Francois Rousse
- Stephane Redon is advising the PhD of Semeho Edorh
- Stephane Redon is co-advising the PhD of Zofia Trstanova in collaboration with Gabriel Stoltz

9.2.3. Juries

- Stephane Redon was in the PhD committee of Matthieu Dreher

9.3. Popularization

- NANO-D participated to the 2015 Fete de la Science (science fair): SAMSON was used by high school students to perform various activities related to computational nanoscience.
- Emilie Neveu participated with the AirSea team to the 2015 Fete de la Science (science fair).
- Emilie Neveu is part of the group "Cafes Sciences et Citoyens de l'Agglomeration Grenobloise", which organises public roundtables every month.
- Stephane Redon gave a talk at TEDx Grenoble https://www.youtube.com/watch?v=Atpigmv529E

9.4. Participation to conferences, seminars

- L. Jaillet, and S. Grudinin attended 2015 Inria Scientific Days, 16th June – 19th June, Nancy, France.
- E. Neveu attented the Basel Computational Biology Conference, 7th June – 10th June, in Basel Switzerland where she presented a poster about Pepsi-Dock.
- S. Redon, L. Jaillet, E. Neveu, Minh-Khoa Nguyen, and S. Grudinin attended the 2015 GT Enzymes / GGMM workshop, 25-28 Mai 2015, Séte France. They gave two talks and presented four posters.
- S. Redon, L. Jaillet, and S. Grudinin attended the AlgoSB winter school, 29th Nov – 04th Dec, Cargése, France.

POEMS Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Advisory and management activities

- P. Joly is a member of the scientific committee of CEA-DAM.
- E. Lunéville is the Head of UMA (Unité de Mathématiques Appliquées) at ENSTA ParisTech.

9.1.2. Scientific events organisation end selection

- E. Bécache, A. S. Bonnet-Ben Dhia, M. Bonnet, C. Hazard, P. Joly and E. Lunéville have been members of the scientific committee for the 12th international conference on mathematical and numerical aspects of wave propagation, which has been held in Karlsruhe in July 2015.
- A. S. Bonnet-Ben Dhia has been a member of the organizing committee of the workshop *Waveguides: asymptotic methods and numerical analysis* which has been held in Napoli in May 2015.
- P. Joly has been a member of the organizing committee of the workshop *Asymptotic analysis and spectral theory* which has been held in Orsay in October 2015.

9.1.3. Journal

- A. S. Bonnet-Ben Dhia is associate editor of SINUM (SIAM Journal of Numerical Analysis).
- M. Bonnet is associate editor of Engineering Analysis with Boundary Elements
- M. Bonnet is in the editorial board of Inverse Problems.
- M. Bonnet is in the editorial board of Computational Mechanics.
- M. Bonnet is in the editorial board of Journal of Optimization Theory and Application.
- P. Ciarlet is an editor of CAMWA (Computers & Mathematics with Applications).
- P. Ciarlet is an editor of ESAIM:M2AN (Mathematical Modeling and Numerical Analysis).
- P. Joly is an editor of ESAIM:M2AN (Mathematical Modeling and Numerical Analysis).
- P. Joly is a member of the editorial board of AAMM (Advances in Applied Mathematics and Mechanics).
- P. Joly is a member of the Book Series Scientific Computing of Springer Verlag.
- The team members regularly review papers for many international journals.

9.2. Teaching - Supervision

9.2.1. Teaching

Eliane Bécache

- *Méthode des éléments finis*, ENSTA ParisTech (2nd year)
- *Compléments sur la méthode des éléments finis*, ENSTA ParisTech, (2nd year)
- *Fonctions d'une variable complexe*, ENSTA ParisTech (1st year)

Marc Bonnet

- *Problèmes inverses*, Master MS2SC (Centrale Paris and ENS Cachan)
- *Méthodes intégrales*, Master TACS (ENS Cachan)
- *Outils élémentaires d'analyse pour les équations aux dérivées partielles*, ENSTA ParisTech (1st year)

Anne-Sophie Bonnet-Ben Dhia

- *Fonctions d'une variable complexe*, ENSTA ParisTech (1st year)
- *Propagation dans les guides d'ondes*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)
- *Etude mathématique de quelques problèmes de transmission avec coefficients changeant de signe*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)
- *Théorie spectrale des opérateurs autoadjoints et applications aux guides optiques*, ENSTA ParisTech (2nd year)

Laurent Bourgeois

- *Outils élémentaires pour l'analyse des équations aux dérivées partielles*, ENSTA ParisTech (1st year)
- *Inverse problems: mathematical analysis and numerical algorithms*, (Master AN& EDP, Paris 6 and Ecole Polytechnique)
- Speaker in the Franco-German Summer School Inverse Problems for Waves, Ecole Polytechnique, August 24-28, 2015.

Stéphanie Chaillat

- *Introduction à la discrétisation des équations aux dérivées partielles*, ENSTA ParisTech (1st year)
- *Fonctions d'une variable complexe*, ENSTA ParisTech (1st year)
- *Equations intégrales et multipôles rapides*, Ecole doctorale MODES (Univ. Paris Est, Marne la Vallée)
- *Résolution des problèmes de diffraction par équations intégrales*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)

Colin Chambeyron

- *Analyse réelle: optimisation libre et sous contraintes*, Dauphine University (1st year)
- *Outils mathématiques*, Dauphine University (1st year)
- *Algèbre linéaire*, Dauphine University (2nd year)

Patrick Ciarlet

- *Compléments sur la méthode des éléments finis*, ENSTA ParisTech (2nd year)
- *Theory and algorithms for distributed computing*, ENSTA ParisTech (3rd year), and Master "Modeling and Simulation" (M2)
- *Maxwell's equations and their discretization*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)
- *Etude mathématique de quelques problèmes de transmission avec coefficients changeant de signe*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)

Sonia Fliss

- *Méthode des éléments finis*, ENSTA ParisTech (2nd year)
- *Introduction à la discrétisation des équations aux dérivées partielles*, ENSTA ParisTech (1st year).
- *Propagation des ondes dans les milieux périodiques*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)
- *Homogeneisation*, Master ANEDP Paris 6 and Ecole Polytechnique (M2)

Christophe Hazard

- *Outils élémentaires d'analyse pour les équations aux dérivées partielles*, ENSTA ParisTech (1st year)

- *Théorie spectrale des opérateurs autoadjoints et applications aux guides optiques*, ENSTA ParisTech (2nd year)

Patrick Joly

- *Introduction à la discrétisation des équations aux dérivées partielles*, ENSTA ParisTech (1st year)
- *Outils élémentaires d'analyse pour les équations aux dérivées partielles*, ENSTA ParisTech (1st year)
- *Propagation des ondes dans les milieux périodiques*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)
- Speaker in the Franco-German Summer School Inverse Problems for Waves, Ecole Polytechnique, August 24-28, 2015.

Nicolas Kielbasiewicz

- *Programmation scientifique et simulation numérique*, ENSTA ParisTech (2nd year)
- *Parallélisme et calcul réparti*, ENSTA ParisTech (Master 2)

Marc Lenoir

- *Fonctions d'une variable complexe*, ENSTA ParisTech (2nd year)
- *Equations intégrales*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)
- *Méthodes asymptotiques hautes fréquences pour les équations d'ondes - course notes*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)

Eric Lunéville

- *Introduction au Calcul Scientifique*, ENSTA ParisTech (2nd year).
- *SIMNUM : Simulation numérique*, ENSTA ParisTech (2nd year).
- *Propagation dans les guides d'ondes*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)

Jean-François Mercier

- *Outils élémentaires d'analyse pour les équations aux dérivées partielles*, ENSTA ParisTech (1st year)
- *Fonctions d'une variable complexe*, ENSTA ParisTech, ENSTA ParisTech (2nd year)
- *Théorie spectrale des opérateurs autoadjoints et application aux guides optiques*, ENSTA ParisTech (2nd year)

9.2.2. Supervision

PhD: Antoine Tonnoir, "Simulation numérique de la diffraction d'ondes ultrasonores par un défaut localisé dans une plaque élastique anisotrope", June 2015, Anne-Sophie Bonnet-Ben Dhia and Sonia Fliss

PhD: Matthieu Lecouvez, "Méthodes de décomposition de domaine optimisées pour la propagation d'ondes en régime harmonique", July 2015, Patrick Joly and Francis Collino

PhD: Simon Marmorat, "Etude d'un modèle asymptotique et de son couplage avec une approche par éléments finis pour simuler la propagation d'ondes ultrasonores dans un milieu complexe perturbé par de petites inclusions", November 2015, Patrick Joly and Xavier Claeys

PhD: Camille Carvalho, "Étude théorique et numérique de guides d'ondes plasmoniques", December 2015, Anne-Sophie Bonnet-Ben Dhia and Patrick Ciarlet

PhD in progress : Zouhair Adnani , "Modélisation numérique tridimensionnelle des effets de site en interaction sol-structure par une méthode adaptée aux problèmes sismiques de très grande taille", October 2014, Marc Bonnet and Stéphanie Chaillat

PhD in progress : Marc Bakry, "Estimateurs a posteriori pour la résolution des problèmes de diffraction par équations intégrales", October 2013, Patrick Ciarlet and Sébastien Pernet.

PhD in progress : Geoffrey Beck, "Modélisation de la propagation d'ondes électromagnétiques dans des câbles co-axiaux", October 2012, Patrick Joly

PhD in progress : Antoine Bensalah, "Une approche nouvelle de la modélisation mathématique et numérique en aéroacoustique par les équations de Goldstein et applications en aéronautique", October 2014, Patrick Joly and Jean-François Mercier

PhD in progress : Mathieu Chamaillard, "Conditions aux limites effectives pour des revêtements minces périodiques", October 2011, Patrick Joly and Houssem Haddar

PhD in progress : Rémi Cornaggia, "Asymptotique petit-défaut de fonctions-coût et son application en identification: justifications théorique et expérimentale, extensions", October 2012, Marc Bonnet and Bojan Guzina

PhD in progress : Luca Desiderio, "Efficient visco-eleastic wave propagation in 3D for high contrast media", October 2013, Stéphanie Chaillat and Patrick Ciarlet

PhD in progress : Léandre Giret, "Development of a domain decomposition method on non-conforming meshes: application to the modeling of a Reactivity-Initiated Accident (RIA) in a Pressurized Water Reactor (PWR)", October 2014, Patrick Ciarlet

PhD in progress : Laure Pesudo , "Modélisation de la réponse ultrasonore de défauts de type fissure par méthode BEM et couplage à un modèle de propagation - Application à la simulation des contrôle non destructifs", October 2014, Marc Bonnet and Stéphanie Chaillat

PhD in progress : Arnaud Recocquillay, "Identification de défauts dans un guide d'ondes en régime temporel", October 2014, Laurent Bourgeois

PhD in progress : Elizaveta Vasilevskaia, "Modes localisés dans les guides d'onde quantiques", November 2012, Patrick Joly

PhD in progress : Valentin Vinoles, "Analyse asymptotique des équations de Maxwell en présence de métamatériaux", October 2012, Sonia Fliss and Patrick Joly

PhD in progress : Emmanuel Zerbib , "Eléments finis spectraux sur maillages décalés en électromagnétisme pour la simulation de grands modèles", October 2014, Gary Cohen

RAPSODI Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific events organisation

I. Lacroix-Violet is in charge of the organization of the weekly seminary of the Numerical Analysis and Partial Differential Equations (ANEDP) research team at the Laboratoire Paul Painlevé, Université de Lille 1.

In the framework of the ANR GEOPOR project, C. Cancès organized a two-days workshop on gradient flows in metric spaces in Paris last June 22-23 (https://www.ljll.math.upmc.fr/cances/GFIP/).

B. Merlet organized of a one day conference on *Calculus of Variations* at Université Lille 1, October 15, 2015.

E. Creusé organized a one-day workshop on Mathematics and Entrepreneurship on November 17, 2015.

10.1.2. Journal

10.1.2.1. Member of the editorial boards

C. Chainais-Hillairet is a member of the editorial board of the North-Western European Journal of Mathematics (http://math.univ-lille1.fr/ nwejm/) and of the International Journal on Finite Volumes (http://www.i2m.univ-amu.fr/IJFV/).

10.1.2.2. Reviewer - Reviewing activities

The members of the team RAPSODI reviewed numerous papers for numerous international journals.

10.1.3. Research administration

C. Cancès was vice-head of the MoMaS research group (http://www.gdrmomas.org) funded by the Institute for Mathematical Sciences and Interaction (INSMI) of the French National Center for Research (CNRS)

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

The group is strongly involved in teaching at the Université Lille 1. C. Calgaro and C. Chainais-Hillairet are in charge respectively of the Master of Mathematical Engineering and of the Master 2 of Scientific Computing. C. Calgaro has contacts with the University of Padua (Italy). Each year, the reception of an Erasmus student (with a strong mathematical background) at the master's level is possible.

10.2.2. Supervision

HDR : C. Cancès, *Analyse mathématique et numérique d'équations aux dérivées partielles issues de la mécanique des fluides : applications aux écoulements en milieux poreux*, defended at Université Pierre et Marie Curie on December 7, 2015.

PhD in progress: P.-L. Colin, *Theoretical and numerical study of some corrosion models*, since 01/10/2012, advisors: C. Chainais-Hillairet & I. Lacroix-Violet.

PhD in progress: A. Aït Hammou Oulhaj, *Design and analysis of nonlinear numerical schemes for solving parabolic problems: application to porous media flows*, since 01/10/2014, advisors: C. Cancès & C. Chainais-Hillairet.

PhD in progress: C. Lecerf, *Analyse numérique et simulations de modèles multifluides*, since 01/10/2015, advisors: C. Calgaro & E. Creusé.

PhD in progress: N. Peton, *Numerical methods for a stratigraphic model with nonlinear diffusion and moving frontier areas*, 15/10/2015, C. Cancès, Q. H. Tran (IFPEN) & S. Wolf (IFPEN).

PhD in progress: Luca Ferrari, *Line energies and applications to image reconstruc- tion of partially masked objects*, since 01/09/2015, advisors: A. Chambolle (CNRS & CMAP, École Polytechnique) & B. Merlet.

10.2.3. Juries

- B. Merlet was a member of Pierre Bochard's PhD Thesis jury on June 24, 2015 at Université Paris-Sud. Title: "Vortex, entropies et énergies de ligne en micromagnétisme".
- E. Creusé was a member of Matthieu Merle's PhD Thesis jury on September 25, 2015 at École Nationale des Arts et Métiers, Paris. Title: "Approches numériques pour l'analyse de stabilité globale d'écoulements pariétaux en régime subsonique".
- Claire Chainais-Hillairet was a member of different juries:
  - Pierre Feron's PhD thesis on November 16, 2015 at Université Paris-Est (Marne-la-Vallée). Title: "Schémas gradients appliqués aux équations elliptiques et paraboliques, linéaires et non-linéaires."
  - Yumeng Zhang's PhD thesis on December 17, 2015 at Université de Nice. Title: "Modélisation et simulation des dispositifs de ventilation dans les stockages de déchets radioactifs."
  - Ulrich Razafison's HDR on December 3, 2015 at Université de Franche-Comté. Title: "Contribution à l'analyse théorique de problèmes elliptiques en domaine non borné, à la simulation numérique d'équations hyperboliques et aux méthodes de bases réduites."
- C. Cancès and C. Chainais-Hillairet were members of the hiring jury of french Agrégation de mathématiques.

10.3. Popularization

C. Calgaro is the organizer of the action "Mathématiques itinérantes" (http://mathematiques.univ-lille1.fr/ Ouvertures/Mathematiques-itinerantes/), which promotes mathematics among young people (conferences in highschools, "journées de la science", etc.). Members of the team regularly participate in these actions.

APICS Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

- L. Baratchart gave a talk at the International Instrumentation and Measurement Technology Conference (I2MTC IEEE), May 11-14 2015, Pisa (Italy), at the AMS-EMS-SPM meeting, June 10-13 2015, Porto (Portugal), at the 10-th ISAAC congress (International Society for Analysis, its Applications and Computation), August 3-8 2015, Macau (China); he was a colloquium speaker at IUPUI, November 2015.
- M. Caenepeel gave a talk at the IMS 2015 in Phoenix [15] and at the EuMC 2015 in Paris [16].
- S. Chevillard gave a talk at the 27th IFIP TC7 Conference on System Modelling and Optimization, Sophia Antipolis (July 2015).
- J. Leblond presented a communication at the seminar “Mathématiques pour l’Analyse des Données” (MAD), Nice, May 21.
- C. Papageorgakis presented posters at the 1st International Conference on Mathematical Neuroscience (ICMNS, Juan les Pins, Jun.) [17] and at the International Conference on Basic and Clinical Multimodal Imaging (BACI, Utrecht, the Netherlands, September) [18], [19].
- D. Ponomarev gave talks at the seminar “Modèles et Algorithmes Déterministes” of Lab. Jean Kuntzmann, Univ. J. Fourier, Grenoble (May 28) and at the 27th IFIP TC7 Conference on System Modelling and Optimization, Sophia Antipolis (July 2015).
- F. Seyfert gave a talk at the European Microwave Week 2015 in the workshop dedicated to "Recent Advances in the Synthesis of Microwave Filters and Multiplexers", Paris, France

9.1.1. Scientific events organisation

L. Baratchart and J. Leblond organized a special session on “Inverse Elliptic Problems” at the 27th IFIP TC7 Conference on System Modelling and Optimization, Sophia Antipolis (July 2015).

K. Mavreas and C. Papageorgakis are the PhD students in charge of the PhD students Seminar within the Research Center (since September).

9.1.1.1. Member of the conference program committees

L. Baratchart was on the Program Committee of the 17th IFAC Symposium on System Identification (SYSID 2015), Beijing, China, October 19-21, 2015.

F. Seyfert was a member of the technical committee of the conference "International Workshop on Microwave Filters" in Toulouse, France, March 23-25 2015, http://www.iwmf2015.com/

9.1.2. Journal

9.1.2.1. Member of the editorial boards

L. Baratchart is a member of the Editorial Boards of the journals *Constructive Methods and Function Theory* and *Complex Analysis and Operator Theory*.

9.1.2.2. Reviewer - Reviewing activities

L. Baratchart was a reviewer for several journals including, *SIAM Journal on Analysis, Inverse Problems, Journal of Approximation Theory, Annales de l’Institut Fourier*.

S. Chevillard was a reviewer for the journal *ACM Transactions on Mathematical Software*.

J. Leblond was a reviewer for the journals *Applied Mathematical Modelling, International Journal of Computer Mathematics*.

F. Seyfert was a reviewer of the journal *IEEE Microwave Transaction on Theory and Techniques*

9.1.3. Invited talks

L. Baratchart was an invited speaker at the Workshop on Blaschke Products and Function Theory, July 29-31 2015, Hong-Kong (China), and at the conference Orthogonal and Multiple Orthogonal Polynomials, August 9-14 2015, Oaxaca (Mexico). He was a plenary speaker at the "Journées du Gdr Analyse Fonctionnelle, Harmonique et Probabilités", November 30-December 4 2015, Luminy (France).

J. Leblond was invited to give a communication at the conference "Harmonic Analysis, Function Theory, Operator Theory and Applications" (in honor of J. Esterle), Bordeaux, Jun. 1-4.

F. Seyfert gave a mini course on "Advanced Filter Synthesis" at the "International Workshop on Microwave Filters" in Toulouse, France, March 23-25 2015

9.1.4. Research administration

S. Chevillard is representative at the "comité de centre" and at the "comité des projets" (Research Center Inria-Sophia).

J. Leblond is an elected member of the "Conseil Scientifique" and of the "Commission Administrative Paritaire" of Inria. She is in charge of the mission "Conseil et soutien aux chercheurs" within the Research Center. She is also a member of the "Conseil Académique" of the Univ. Côte d'Azur (UCA).

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Colles: S. Chevillard is giving "Colles" at Centre International de Valbonne (CIV) (2 hours per week).

9.2.2. Supervision

PhD in progress: D. Ponomarev, Inverse problems for planar conductivity and Schrödinger PDEs, since Nov. 2012 (advisors: J. Leblond, L. Baratchart).

PhD in progress: M. Caenepeel, The development of models for the design of RF/microwave filters, since Feb. 2013 (advisors: Y. Rolain, M. Olivi, F. Seyfert).

PhD in progress: C. Papageorgakis, Conductivity model estimation, since Oct. 2014 (advisors: J. Leblond, M. Clerc, B. Lanfer).

PhD in progress: K. Mavreas, Inverse source problems in planetary sciences: dipole localization in Moon rocks from sparse magnetic data, since Oct. 2015 (advisors: S. Chevillard, J. Leblond).

9.2.3. Juries

L. Baratchart was a reviewer for the "Mémoire d'habilitation à diriger des Recherches" of Rachid Zarouf, Univ. Aix-Marseille, December 2015.

J. Leblond was a member of the "jury d'admission du concours CR" of Inria (Jun.).

9.3. Popularization

- M. Olivi is president of the Committee MASTIC (Commission d'Animation et de Médiation Scientifique) https://project.inria.fr/mastic/. She is responsible for Scientific Mediation.

BIPOP Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. General chair, scientific chair

G. James is chairing with C.Daraio (ETH Zürich) and A. Vakakis (Univ. Illinois) the forthcoming Euromech colloquium 580 *Strongly nonlinear dynamics and acoustics of granular metamaterials*, which will be organized by the BIPOP team at Inria in July 2016.

9.1.2. Scientific events selection

9.1.2.1. Chair of conference program committees

- Florence Bertails-Descoubes was Program Chair of the 2015 ACM/EG Symposium on Computer Animation, together with Stelian Coros (Carnegie Mellon University).

9.1.2.2. Member of the conference program committees

- Bernard Brogliato was Program Committee Member for the first IEEE International Conference on Event-based Control, Communication, and Signal Processing (EBCCSP 2015), June 17-19, 2015, Krakow, Poland

  (www.ebccsp2015.org).
- Bernard Brogliato was in the International Program Committee de 14th European Control Conference, Linz, Austria, July 15-17, 2015.
- Florence Bertails-Descoubes was in the Program Committee of ACM SIGGRAPH Asia 2015.
- Pierre-Brice Wieber was Associate Editor for the 2015 IEEE RAS Humanoids Conference.

9.1.3. Journal

9.1.3.1. Member of the editorial boards

- Pierre-Brice Wieber is Associate Editor for IEEE Transactions on Robotics.
- Bernard Brogliato is Associate Editor for Nonlinear Analysis: Hybrid Systems (starting January 2016).

9.1.3.2. Reviewer - Reviewing activities

- Bernard Brogliato is a reviewer for Automatica, IEEE Transactions on Automatic Control, ASME Journal of Applied Mechanics, Multibody System Dynamics, Nonlinear Analysis, Systems and Control Letters.
- Arnaud Tonnelier is a reviewer for Physical Review E, Nonlinear Analysis: Hybrid Systems, Journal of Physics A, International Journal of Bifurcation and Chaos, SIADS, Mathematical Biosciences and Engineering.
- Florence Bertails-Descoubes is a reviewer for ACM SIGGRAPH, ACM SIGGRAPH Asia, ACM Transactions on Graphics, IEEE Transactions of Vizualisation and Computer Graphics, Eurographics, Computer Graphics Forum.
- Jérome Malick is reviewer for SIAM Journal of Optimization, Computational Optimization and Applications, Set-Valued and Variational Mathematics

9.1.4. Invited talks

- Florence Bertails-Descoubes gave the following invited talks in 2015:

- *"Geometry and mechanics of fibers: some numerical models"*, Mathematical Progress in Expressive Image Synthesis, Kyushu University (Fukuoka, Japon), September 2015.
- *"Geometry and mechanics of fibers: some numerical models"*, Rencontres DYSCO, organized in Treffort (Isère) by the interdisciplinary laboratory of physics (LIPhy), May 2015.
- *"Modélisation numérique de fibres en contact : application à la synthèse de chevelures réalistes"*, Collège de France, Paris (within the course series given in 2015 by M.-P. Cani), April 2015.

9.1.5. Research administration

- Arnaud Tonnelier is member of CNU 26 (2011-2015).

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master 2015-2016: Pierre-Brice Wieber, Autonomous Robotics, 9h, M2, MOSIG (Grenoble INP)

Master 2015 : Jérôme Malick, Numerical Optimization, 50 h., M1, ENSIMAG (Grenoble INP)

Master 2015 : Jérôme Malick, Mathematical Programming, 16 h., M2, UJF

Master 2015-2016: Florence Bertails-Descoubes, IRL Module, 3 h., M1, ENSIMAG (Grenoble INP)

9.2.2. Supervision

HdR : Vincent Acary, université Grenoble-Alpes, July 2015.

PhD : Romain Casati, Quelques contributions à la modélisation numérique de structures élancées pour l'informatique graphique, université Grenoble-Alpes, June 2015, F. Bertails-Descoubes.

PhD : Olivier Huber, Commande par modes glissants en temps discret, université Grenoble-Alpes, B. Brogliato and V. Acary.

PhD : Mounia Haddouni, Algorithmes de résolution de la dynamique du contact avec impact et frottement, université Grenoble-Alpes, B. Brogliato and V. Acary.

PhD : Jory Lafaye, Control of movements and balance of a humanoid robot with omnidirectional wheels, université Grenoble-Alpes, P.B. Wieber.

PhD in progress : Narendra Akadkhar, Analysis of multibody systems with joint clearances, January 2013, université Grenoble-Alpes, to be defended in March 2016, B. Brogliato and V. Acary.

PhD in progress : Alejandro Blumentals, Analysis of rigid and deformable mechanical systems with frictional constraints, université Grenoble-Alpes, September 2013, B. Brogliato and F. Bertails-Descoubes.

PhD in progress : Jose Morales Morales, Soliton in the excitable Burridge-Knopoff model, université Grenoble-Alpes, September 2013, G. James and A. Tonnelier.

PhD in progress : Gilles Daviet, Macroscopic modeling of granular and fibrous materials, université Grenoble-Alpes, September 2014, F. Bertails-Descoubes and B. Raffin.

PhD in progress : A. Sherikov, Control of humanoid robots, Université Grenoble-Alpes, P.B. Wieber.

PhD in progress : Alexandre Vieira, Commande optimale de systèmes linéaires de complémentarité, université Grenoble-Alpes, B. Brogliato and C. Prieur.

PhD in progress : Nestor Bohorquez, Safe motion for humanoid robots in human environments, Université Grenoble-Alpes, P.B. Wieber.

PhD in progress : Federico Pierucci, nonsmooth optimization for machine learning , université Grenoble-Alpes, J. Malick and A. Ioudilski.

PhD in progress : Saed Al Homsi, Génération en ligne de trajectoires optimales en temps pour des robots industriels en environnements dynamiques, 17 March 2016, université Grenoble-Alpes, P.B. Wieber.

9.2.3. Juries

- Bernard Brogliato:
  - Habilitation (HDR) of Gang Zheng, November 2015, Inria Lille.
  - PhD thesis of P.O. Lamarre (LJK, Grenoble), September 2015.
- Pierre-Brice Wieber:
  - PhD thesis of J. Agravante (LIRMM, Montpellier), December 2015.

9.3. Popularization

- Florence Bertails-Descoubes co-authored the paper “Approcher des courbes par des hélices” in the journal Quadrature (making the cover of the journal), together with Alexandre Derouet-Jourdan, April 2015.
- Pierre-Brice Wieber gave a lecture on “The best way to walk for a robot” to 100 high-school students during the national Mathematics week, March 2015.

COMMANDS Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific events organisation

10.1.1.1. General chair, scientific chair

- Axel Kröner (chair), Frederic Bonnans: Workshop on "Optimal Control of Partial and Ordinary Differential Equations", Palaiseau, November 16-17
- Axel Kröner: Minisymposium on "Optimal Control and Hamilton-Jacobi Bellman Equations: Numerical Methods and Applications"

10.1.1.2. Member of the organizing committees

- F. Bonnans: PGMO days, Oct. 27-28, Ensta, Palaiseau.

10.1.2. Scientific events selection

10.1.2.1. Member of the conference program committees

- F. Bonnans: XII International Seminar on Optimization and Related Areas (ISORA), Lima, Peru, 5-9 October 2015.
  16th IFAC Workshop Control Applications of Optimization (CAO'2015) Garmisch-Partenkirchen, Germany, Oct. 6-9, 2015.
  EUROPT Workshop on Advances in Continuous Optimization, July 8-10, 2015, Edinburgh.

10.1.2.2. Organization of sessions

- A. Kröner (with D. Kalise (RICAM)): Minisymposium on "Optimal Control and Hamilton-Jacobi Bellman Equations: Numerical Methods and Applications. 27 th IFIP TC7 Conference 2015 on System Modelling and Optimization. SophiaTech Campus Sophia Antipolis, France, June 29 - July 3, 2015

10.1.3. Journal

10.1.3.1. Editorial boards

- F. Bonnans is Corresponding Editor of "ESAIM:COCV" (Control, Optimization and Calculus of Variations), and Associate Editor of "Applied Mathematics and Optimization", "Optimization, Methods and Software", and "Series on Mathematics and its Applications, Annals of The Academy of Romanian Scientists".

10.1.3.2. Reviewer - Reviewing activities

Reviews for major journals in the field such as Applied Mathematics and Optimization, Automatica, Journal of Optimization Theory and Applications the SIAM J. Optimization, SIAM J. Control and Optimization.

10.1.4. Leadership within the scientific community

- F. Bonnans: member of the PGMO board (Gaspard Monge Program for Optimization and Operations Research, EDF-FMJH).
- F. Bonnans: member of the Broyden Prize committe (from the Journal Optimization Methods and Software).

10.1.5. Research administration

- F. Bonnans: member of the Institut carnot Inria commission, and of the Inria-Saclay commission for "Technological developement actions" (ADT).

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Master :
  F. Bonnans: Numerical analysis of partial differential equations arising in finance and stochastic control, 24h, M2, Ecole Polytechnique and U. Paris 6, France.
  F. Bonnans: Optimal control, 15h, M2, Optimization master (U. Paris-Saclay) and Ensta, France.
  F. Bonnans : Stochastic optimization, 15h, M2, Optimization master (U. Paris-Saclay), France.

  E-learning

  Pedagogical resources: F. Bonnans, several lecture notes on the page
  http://www.cmap.polytechnique.fr/∼bonnans/notes.html

10.2.2. Supervision

- PhD in progress : Cédric Rommel, Data exploration for the optimization of aircraft trajectories. Started November 2015, F. Bonnans and P. Martinon, CIFRE fellowship (Safety Line).
- PhD in progress : Benjamin Heymann, Dynamic optimization with uncertainty; application to energy production. Started October 2013, F. Bonnans, Polytechnique fellowship.
- PhD: Florine Bleuse, Optimal control and robustness for rechargeable hybrid vehicles. Started October 2014, stopped September 2015. F. Bonnans and P. Martinon, IFPEN fellowship.
- PhD: Nicolas Grébille, Numerical methods for solving stochastic equilibrium problems; application to energy markets. Started January 2013, stopped December 2015, F. Bonnans, CIFRE fellowship (EDF R & D).
- PhD: Cristopher Hermosilla, Optimal control problems on well-structured domains and stratified feedback controls, ENSTA ParisTech, February 2015, F. Jean, H. Zidani. https://hal.inria.fr/tel-01128691 [11][cite:picarelli:tel-01145588]
- PhD: A. Picarelli, On some stochastic control problems with state constraints, ENSTA ParisTech, April 2015, H. Zidani.

10.2.3. Juries

Various PhD juries in France.

10.3. Popularization

- F. Bonnans: article on 'Optimal Control' for the Encyclopédie des sciences de l'ingénieur [30].
- F. Bonnans and P. Martinon: Inria-industry day on energetic transition, June 12, 2015. Common stand with Safety Line on energy savings by optimization aircraft trajectories.
- B. Heymann: talk at the Workshop on open power systems (WOPS), Oct. 16, 2015, Institut des systèmes complexes, Paris .

DISCO Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific events organisation

10.1.1.1. General chair, scientific chair

- Catherine Bonnet was co-chair of the Organizing Committee of SIAM CT15 which will held 8-10 July in Paris.

- Catherine Bonnet is together with Alexandre Chapoutot and Paolo Mason the organizer of the Working Group Shy of Digicosme on the Plateau de Saclay.

10.1.1.2. Member of the organizing committees

- Catherine Bonnet was with Maurice Robin (DIGITEO) the co-Local Conference Organizer of SIAM CT15 which will held 8-10 July in Paris.

- Catherine Bonnet was a member of th organizing Committee of IFIP 2015, June 29-July 3rd 2015, Sophia-Antipolis, France.

10.1.2. Scientific events selection

10.1.2.1. Member of the conference program committees

Catherine Bonnet is a member of the IPC of the IFAC TDS16 Conference, Istambul, june 2016.

Hakkı Unal is a Member of National Programme Committee of Turkish Automatic Control Meeting in 2016. Frédéric Mazenc a member of the scientific committee of SIAM on Control and Its Applications CT15, (Paris, France, July 2015), http://www.siam.org/meetings/ct15/

Sorin Olaru was member of the IPC for ICSTCC 2015.

Guillaume Sandou was a member of the program committee of the 2015 IEEE Symposium on Computational Intelligence in Production and Logistics Systems, Cape Town, South Africa.

10.1.2.2. Reviewer

The team reviewed many papers for international conferences e.g IEEE Conference on Decision and Control, American Control Conference, European Control Conference, the power systems computation conference (PSCC)

10.1.3. Journal

10.1.3.1. Member of the editorial boards

Frédéric Mazenc is Member of the Mathematical Control and Related Fields editorial board.

Frédéric Mazenc is Member of the European Journal of Control editorial board.

Frédéric Mazenc is Associate Editor for the Asian Journal of control.

Frédéric Mazenc is Associate Editor for the Journal of Control and Decision.

Frédéric Mazenc is Associate Editor for IEEE Transactions on Automatic Control.

Frédéric Mazenc was Associate Editor for the conferences 2016 American Control Conference, Boston, USA and the 54th IEEE Conference on Decision and Control, Osaka, Japan, (2015).

A. Quadrat is an associate editor of the journal *Multidimensional Systems and Signal Processing*, Springer.

Sorin Olaru is an associate editor for IMA Journal of Mathematical Control and Information

10.1.3.2. Reviewer - Reviewing activities

The team reviewed many papers for international journals of mathematics, control Theory and symbolic computation e.g European Journal of Control, Automatica, IEEE Trans. Aut. Contr., IEEE Trans. on Control Systems Technology, IMA Journal of Mathematical Control and Information, Journal of Process Control, Asian Journal of Control, transactions on control systems and technology journal and for a book for Springer.

10.1.4. Invited talks

Y. Bouzidi was an invited speaker at the conference ANR GeoLIM, Jussieu 22-24/06 and at the Cadi Ayyad university, Marrakesh, Morocco (17/12), and gave a talk at the seminar of the Vegas team, Inria Nancy Grand Est (30/06).

Frédéric Mazenc was a plenary speaker of 12th International Multi-Conference on Systems, Signals and Devices, SDD'15, http://www.ssd-conf.org/ssd15/. March 16-19, 2015, Mahdia, Tunisia. Title of his talk: *Stabilization of Time-Varying and Nonlinear Systems with Pointwise and Distributed Delays Through the Reduction Model Approach.*

Frédéric Mazenc gave a talk entitled "*Interval Observer: recent advances*" for the Journée Analyse et Synthèse dâobservateur pour les systèmes complexes, INSA Centre Val de Loire, Campus de Bourges, 17 juin 2015, http://www.ensea.fr/webecs/New-SYNC/

Frédéric Mazenc gave a talk entitled "*Continuous-Discrete Observers for Time-Varying Nonlinear Systems: A Tutorial on Recent Results*" for the workshop entitled "Praly's fest" in July, 27-28th 2015, Mines ParisTech, Paris, http://cas.ensmp.fr/ petit/LP/

A. Quadrat was an invited speaker at 7th Functional Equations in LIMoges (FELIM), Limoges, 23-25/03, at the conference ANR GeoLIM, Jussieu 22-24/06, and at the 4th DelSys conference (25-27/11). He gave a talk at the GT Systèmes à Retards (SAR) (04/06) and at the seminar of the Non-A team, Inria Lille - Nord Europe (06/02) and of the SpecFun team, Inria Saclay (15/06).

Sorin Olaru delivered an IEEE talk in Montreal, Canada in 2015. Details at: https://meetings.vtools.ieee.org/m/34673

10.1.5. Leadership within the scientific community

Frédéric Mazenc was Co-Editor of "Recent Results on Nonlinear Delay Control Systems, Springer", Advances in Delays and Dynamics, Volume 4 2016,

Editors: Michael Malisoff, Pierdomenico Pepe, Frédéric Mazenc, Iasson Karafyllis,

ISBN: 978-3-319-18071-7 (Print) 978-3-319-18072-4 (Online).

10.1.6. Scientific expertise

Catherine Bonnet is a member of the Evaluation Committee of Inria since September 2015.

Catherine Bonnet has been an expert for ANR.

Since 2014, Frédéric Mazenc is an expert for the FNRS (Belgium). His mission consists in evaluating research projects funded by this institution.

Since 2012, Frédéric Mazenc is a, expert for the ANVUR (National Agency for the Evaluation of Universities and Research Institutes, Italy). His mission consists in evaluating the contribution of Italian scientists.

Since 2011, Frédéric Mazenc is a, expert for the Romanian National Council for Development and Innovation (Romania). His mission consists in evaluating research projects funded by the this institution.

10.1.7. Research administration

Catherine Bonnet is in the board of Directors of the consortium Cap'Maths.

She is also involved in the Inria Parity Committee created in 2015.

Frédéric Mazenc and Sorin Olaru are members of the Conseil du Laboratoire of Laboratoire des Signaux et Systèmes (L2S).

Frédéric Mazenc is president of the commission scientifique du CRI Saclay-Ile-de-France.

Frédéric Mazenc is member of the Bureau du Comité des Projets du CRI Saclay - Ile-de-France

A. Quadrat was in charge for Inria Saclay of the ANR MDOS.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Master: A. Quadrat gave a course on constructive algebra (30 hours) at AIMS Structured Master's Mathematical Sciences, African Institute for Mathematical Sciences, South Africa, 23/02-13/03/2015.

Licence : Guillaume Sandou, Signals and Systems, 87h, L3, CentraleSupélec

Licence : Guillaume Sandou, Mathematics and programming, 18h, L3, CentraleSupélec

Master : Guillaume Sandou, Automatic Control, 8h, M1, CentraleSupélec

Master : Guillaume Sandou, Numerical methods and optimization, 28h, M1 and M2, CentraleSupélec

Master : Guillaume Sandou, Modelling and system stability analysis, 21h, M2, CentraleSupélec

Master : Guillaume Sandou, Control of energy systems, 22h, M2, CentraleSupélec

Master : Guillaume Sandou, Robust control and mu-analysis, 9h, M2, CentraleSupélec

Master : Guillaume Sandou, Systems identification, 32h, M2, ENSTA

Master : Guillaume Sandou, System Analysis, 22h, M2, Ecole des Mines de Nantes

10.2.2. Supervision

- PhD in progress : Mohamed Lotfi Derouiche, Sur l'optimisation par métaheuristiques avancées de lois de commande prédictive non linéaire. Supervisor: Soufienne Bouallegue, Joseph Haggége et Guillaume Sandou.
- PhD in progress Walid Djema, Analysis of an AML model enabling evaluation of polychemiotherapies delivered in the case of AML which have a high level of Flt-3 duplication (Flt-3-ITD). Supervisor : Catherine Bonnet. Co-supervisors : Jean Clairambault and Frédéric Mazenc.
- PhD : Philippe Feyel, Optimisation des correcteurs par les métaheuristiques et application à la stabilisation inertielle de ligne de visée, soutenue le 16 juin 2015.
- PhD in progress : Sophie Frasnedo, Optimisation globale des lois de commande des autodirecteurs sur critére optronique : application à un autodirecteur à double phase de stabilisation. Supervisors : Gilles Duc et Guillaume Sandou.
- PhD in progress : Nicolo Gionfra, Optimisation du pilotage d'un parc d'énergies renouvelables avec stockage et du réseau de distribution sous-jacent. Supervisors: Houria Siguerdidjane et Guillaume Sandou.
- PhD in progress : Mohamad Koteich, Modélisation et Observabilité des Machines Electriques en vue de la commande sans capteur mécanique. Supervisors: Gilles Duc et Guillaume Sandou.
- PhD in progress : Juliette Pochet, Analyse de performance et de résilience d'une ligne de type RER équipée d'un automatisme CBTC. Supervisors: Guillaume Sandou.
- PhD: G. Rance, *Stabilisation paramétrique de systèmes flexibles à retard et applications aux viseurs*, SAGEM Défense Sécurité, CIFRE. Supervisors: A. Quadrat and H. Mounier.
- Postdoc: Y. Bouzidi, *Constructive study of analysis and synthesis problems of multidimensional systems*, Inria Saclay - Île-de-France, ANR MSDOS. Supervisor: A. Quadrat.

10.2.3. Juries

Catherine Bonnet was the President of the Jury of the Junior Researcher (CR2) Competition of the Saclay-Ile-de-France Inria center in 2015.

She was the external examiner of the thesis of Aolo Bashar Abusaksakar entitled "*Properties of Delay Systems and Diffusive Systems*", School of Mathematics, University of Leeds, UK, 29 June 2015.

Frédéric Mazenc was a reviewer of the PhD thesis of Vincent Léchappé, entitled "*Predictive control and estimation of uncertain systems with an input delay*", (Université de Nantes Angers Le Mans, ECN, December 7, 2015).

A. Quadrat was a reviewer of the PhD thesis of S. Damak, “Approximation de systèmes à paramètres répartis : Analyse, simulation et commande”, INSA Lyon, 31/03.

Sorin Olaru was member of the PhD defense committee of Juan Manuel Grosso Perez at Universitat Politecnica de Catalunya.

Guillaume Sandou was a member of the following PhD theses committees:

+ Yujun He, Contribution au réglage de la tension sur un réseau HTA avec producteurs. Apport de la flexibilité de la demande, 5 mars 2015.
+ Rodrigo Mena, Risk based Modeling, Simulation and Optimization for the Integration of Renewable Distributed Generation into Electric Power Networks, 30 juin 2015.

GECO Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific events organisation

8.1.1.1. General chair, scientific chair

Ugo Boscain was member of the scientific committee of the workshop Nonlinear Control and Geometry, 23-29/08/2015, Banach Center Conferences, Bedlewo. Poland.

8.1.2. Journal

8.1.2.1. Member of the editorial boards

- Ugo Boscain is Associate Editor of SIAM Journal of Control and Optimization
- Ugo Boscain is Managing Editor of Journal of Dynamical and Control Systems
- Mario Sigalotti is Associate Editor of Journal of Dynamical and Control Systems
- Ugo Boscain is Associate Editor of ESAIM Control, Optimisation and Calculus of Variations
- Ugo Boscain is Associate Editor of Mathematical Control and Related Fields
- Ugo Boscain is Associate editor of Analysis and Geometry in Metric Spaces

8.1.3. Invited talks

- Mario Sigalotti gave an invited talk at the Journée McTAO, Dijon, Jan 2015;
- Ugo Boscain gave an invited talk at the Workshop on Infinite-dimensional Riemannian geometry, Wien Austria, Jan 2015;
- Mario Sigalotti gave an invited talk at the conference on Persistence of population models in temporally fluctuating environments, Lausanne, Switzerland, Feb 2015;
- Mario Sigalotti gave an invited talk at the GSSI-GDRE CONEDP workshop in L'Aquila, Italy, Apr 2015;
- Ugo Boscain gave an invited talk at the INDAM meeting "The Hamilton-Jacobi Equation: at the crossroads of PDE, Dynamical Systems and Geometry", Cortona, Italy, Jun 2015;
- Ugo Boscain gave an invited talk at the workshop "From Open to Closed Loop Control", Mariatrost, Graz, Austria Jun 2015;
- Mario Sigalotti gave an invited talk at the Workshop on Nonlinear Control and Geometry, Bedlewo, Poland, Aug 2015;
- Ugo Boscain gave an invited talk at the Workshop on Analysis and PDE, Leibniz Universität, Hannover, Germany, Sep 2015;
- Ugo Boscain gave an invited talk at the workshop "Stochastic Analysis and Numerical Perspectives", Inria Sophia Antipolis, Sep 2015;
- Ugo Boscain has been plenary speaker at the "Journées Annuelles 2015 du GdR MOA", Dijon, Dec 2015.

8.2. Teaching - Supervision - Juries

8.2.1. Supervision

- PhD in progress: Guiherme Mazanti, "Stabilité et taux de convergence pour les systèmes à excitation persistante", started in 1/9/2013, supervisors: Yacine Chitour, Mario Sigalotti.
- PhD in progress: Ludovic Sacchelli, "Sub-Riemannian geometry, hypoelliptic operators, geometry of vision", started in 1/9/2015, supervisors: Ugo Boscain, Mario Sigalotti.
- PhD in progress: Leonardo Suriano, "Conception d'un cortex visuel primaire artificiel", started in 1/10/2015, supervisors: Ugo Boscain, Mario Sigalotti.

8.2.2. Juries

Mario Sigalotti was member of the commission for the PhD defense of Pierre-Olivier Lamare, University of Grenoble, September 2015.

8.3. Popularization

Ugo Boscain gave a popularization conference at the “Rencontres Mathématiques de Rouen” with a genral introduction to sub-Riemannian geometry and its applications, Jun 2015.

I4S Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific events organisation

10.1.1.1. Member of the organizing committees

Q. Zhang is member of the national organization committee of the IFAC Symposium SAFEPROCESS 2015.

10.1.2. Scientific events selection

10.1.2.1. Chair of conference program committees

V. Le Cam is head of of the scientific committee of the EWSHM scientific committee for 2015.

10.1.2.2. Member of the conference program committees

V. Le Cam was member of the scientific committee for IWSHM 2015 in Stanford.

J.Dumoulin is

- member of the scientific committee of the GI Division (Geosciences Instrumentation and Data Systems) of EGU for infrastructure instrumentation and monitoring since April 2013.
- member of the committee of QIRT (quantitative Infrared Thermography) since February 2014 (http://qirtasia2015.com/)
- organizer of some invited sessions at EGU 2015 (http://www.egu2015.eu/).

L. Mevel

- is member of the EWSHM scientific committee.
- is member of the IOMAC scientific committee.

Q. Zhang is

- Member of IFAC Technical Committee on Modelling, Identification and Signal Processing (TC 1.1, http://tc.ifac-control.org/6/4/).
- Member of IFAC Technical Committee on Fault Detection, Supervision and Safety of Technical Processes (TC 6.4, http://tc.ifac-control.org/6/4/).
- Member of the international program committee of the IFAC Symposium SYSID 2015.
- Member of the international program committee of the IFAC Symposium SAFEPROCESS 2015.

10.1.2.3. Reviewer

V. Le Cam was reviewer and session chairman for the IWSHM 2015 in Stanford

M. Doehler was reviewer for IFAC Safeprocess 2015 and IEEE Multi-Conference on Systems and Control

M. Doehler was co-chairman at SYSID 2015.

L. Mevel was reviewer and session chairman for IFAC Safeprocess 2015.

10.1.3. Journal

10.1.3.1. member of the editorial board

L. Mevel is member of the editorial board of journal of Mathematical Problems in Engineering.

L. Mevel is member of the editorial board of journal of Shock and Vibration.

Q. Zhang is member of the editorial board of the journal “Intelligent Industrial Systems”, Springer.

10.1.3.2. Reviewer - Reviewing activities

L. Mevel was reviewer for Mechanical Systems and Signal Processing, journal of Sound And Vibration. He was reviewer for Research Foundation Flanders in 2015.

M. Doehler was reviewer for Journal of Sound and Vibration, Sensors, Mechanical Systems and Signal Processing, Journal of Selected Topics in Signal Processing, Structural Control and Health Monitoring, ASCE Journal of Aerospace Engineering, ASCE Journal of Bridge Engineering, European Journal of Environmental and Civil Engineering

J. Dumoulin was reviewer for IEEE Transactions on Instrumentation and Measurement, Quantitative Infrared Thermography Journal, Optics and Lasers in Engineering journal , Journal Cultural Heritage, International Journal of Architectural Heritage, Journal of Geophysics and Engineering, Research in Nondestructive Evaluation

10.1.4. Invited talks

Q. Zhang was invited paper speaker at SYSID 2015 [22].

J. Dumoulin wa invited keynote speaker at QIRT'2015 [21].

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence Professionnelle TAM : J. Dumoulin, thermographie infrarouge active, 8h, Université Paris-Est, France

Master 2 MMMRI, (Maintenance et Maîtrise des Risques Industriels) , J. Dumoulin, contrôle non destructif par thermographie infrarouge active, 12h, Université Paris-Est, France

Master Système Communicant Mobile, V. Le Cam, embedded systems under Linux Operating System, 12h, Polytech Nantes, France

Master Civil engineering, V. Le Cam, Structural Monitoring, 4h, Université de Nantes, France

Licence 3 SEICOM, V. Le Cam, 3h, SHM and smart grids, Université de Nantes, France

Licence 3 SEICOM, V. Le Cam, 8h, TP, SHM and smart grids, Université de Nantes, France

ESEO, V. Le Cam, 8h, TP, embedded systems under Linux Operating System, France

10.2.2. Supervision

PhD : Delwar Hossain Bhuyan, *Damage localisation on offshore platforms*, L. Mevel and M. Doehler, Ecole doctorale MATISSE, Université de Rennes 1, since November 2014

Liangquan Zhang's post-doctoral project on hybrid system monitoring, Q. Zhang, 2014-2015.

Guillaume Gautier's post-doctoral project on morphosense system monitoring, L. Mevel, 2015-2017.

PhD : Nassif Berrabah, Electrical cable aging monitoring , Q. Zhang, Ecole doctorale MATISSE, Université de Rennes 1, since November 2014

J. Dumoulin was supervisor of the Master training of Nicolas Le Touz at Ecole Centrale Nantes (ECN) in 2014 and 2015.

10.2.3. Juries

- L. Mevel was referee for the PhD of Fatima Nasser at GIPSA Lab in May 2015.
- L. Mevel was referee for the PhD of Guillaume Gautier at INSA Val de Loire in July 2015.
- J. Dumoulin was part of the jury for María Inmaculada Martínez Garrido at E.T.S.Ingeniería y Sistemas de Telecomunicacíón de la Universidad Politécnica de Madrid in June 2015.

10.3. Popularization

- V. Le Cam has been invited at the ConfLunch of IRISA on April 24th 2015. http://videos.rennes.inria.fr/confLunch/#Le Cam.
- J. Dumoulin has been involved in the COP 21 France stand for a solar hybrid road demonstration.
- V. Le Cam was present at the inauguration of Cité des Objets Connectés in Angers on 11/06/15 in presence of France president. He was inside the Smart sensors stand for IFSTTAR.
- A nice showcase of I4S was present at the 2015's Hanover messe, in April 2015: BAM (Berlin) had a steel frame demonstrator for the public using our techniques.

Maxplus Team

10. Dissemination

10.1. Animation de la communauté scientifique/Promoting Scientific Activities

10.1.1. Scientific events organisation

10.1.1.1. Member of the organizing committees

- M. Akian et S. Gaubert, co-organisateurs (avec William McEneaney, San Diego, et Guillaume Vigeral, Paris-Dauphine) du minisymposium "Dynamic Games and Operators" de SIAM CT'15 (SIAM Conference on Control and its Applications) Juillet, Paris.
- S. Gaubert co-organisateur (avec William McEneaney, San Diego, et Peter Dower, Univ. Melbourne) du minisymposium "Complexity Issues in Control Computation and Max-Plus Methods" de SIAM CT'15 (SIAM Conference on Control and its Applications) Juillet, Paris.
- S. Gaubert, co-organisateur du Séminaire Parisien d'Optimisation.

10.1.2. Scientific events selection

10.1.2.1. Chair of conference program committees

- S. Gaubert, président du comité scientifique de SMAI-MODE 2016 (Toulouse, Mars 2016).

10.1.2.2. Member of the conference program committees

- S. Gaubert, membre du comité scientifique de SIAM CT'15, Paris, Juillet 2015.

10.1.3. Journal

10.1.3.1. Member of the editorial boards

- S. Gaubert est membre du comité éditorial de la collection Mathématiques et Applications, SMAI et Springer.
- S. Gaubert est membre du comité éditorial du journal RAIRO Operations research.

10.1.4. Invited talks

- S. Gaubert, Oberwolfach Workshop on Noncommutative Geometry, Tropical linear programming, June 2016.
- Cours introductif aux Journées Nationales de Calcul Formel, Cluny, Novembre 2015, "Tropical algebra applied to linear programming, mean payoff games, and eigenvalue problems".
- Exposé introductif au GDR MOA, Dijon, Dec. 2015: "Long and winding central paths, games and non-archimedean linear programming".

10.1.5. Research administration

- S. Gaubert :
  - Directeur du PGMO (Programme Gaspard Monge d'optimisation, programme de mécénat d'EDF administré par la FMJH).
  - Vice-président du comité des projets du Centre de Recherche Inria de Saclay – Île-de-France, et membre nommé de la commission d'évaluation de l'Inria (Janvier 2008 – Aôut 2015).
  - Membre du conseil scientifique du CMAP.
  - Membre du CNU en 26ième section (2011 – 2015).
- X. Allamigeon:

- Membre du conseil de laboratoire du CMAP.

10.2. Enseignement - Encadrement - Jurys /Teaching - Supervision - Juries

10.2.1. Enseignement/Teaching

- M. Akian
  - Cours “Markov decision processes: dynamic programming and applications” commun à la troisième année de l’ENSTA et au M2 “Optimisation” de l’Université Paris Saclay, cours partagé avec Jean-Philippe Chancelier (15 heures chacun).
- X. Allamigeon
  - Petites classes et encadrement d’enseignements d’approfondissement de Recherche Opérationnelle en troisième année à l’École Polytechnique (programme d’approfondissement de Mathématiques Appliquées) (niveau M1).
  - Cours du M2 “Optimisation” de l’Université Paris Saclay, cours partagé avec Céline Gicquel et Dominique Quadri (LRI, Université Paris Sud)
  - Co-responsabilité du programme d’approfondissement en mathématiques appliquées (troisième année) à l’École Polytechnique
- V. Boeuf
  - Petite classe du cours de tronc commun de 1ere année "Introduction à l’optimisation" de l’École des ponts (ENPC), niveau L1.
  - Encadrement des projets informatiques du cours de 3e année de l’Ensta ParisTech "Programmation mathématique" C9-1.
- S. Gaubert
  - Cours “Systèmes à Événements Discrets”, option MAREVA, ENSMP.
  - Cours “Algèbre max-plus pour le contrôle optimal et les jeux” du Parcours Optimisation, Jeux et Dynamique (ODJ) du M2 Mathématiques et Applications de l’Université de Paris 6 et de l’École Polytechnique.
  - Cours magistral, petites classes et organisation des enseignements d’approfondissement de Recherche Opérationnelle en troisième année à l’École Polytechnique (programme d’approndissement de Mathématiques Appliquées), avec polycopié [75].
- A. Hochart
  - Cours de niveau L1 à l’Univ. Paris Diderot (Paris VII), dans le cadre d’un monitorat (34h).
- A. Marchesini
  - TD du Cours de L2 “Traitement du signal” (16 heures) et du cours de L1 "Graphes et langages" (2x21 heures) à l’IUT d’Orsay dans le cadre d’un monitorat.
- N. Stott
  - Cours et TD “Introduction à la programmation graphique en C++”, option MAREVA et semaine Athens à l’ENSMP (École des Mines de Paris), niveau M1.

10.2.2. Encadrement/Supervision

- PhD : Andrea Marchesini, inscrit à l’École Polytechnique, à partir de septembre 2012, directeur de thèse: Marianne Akian, codirection: S. Gaubert, avec une participation à l’encadrement de Françoise Tisseur (U. Manchester), soutenue le 15 décembre 2015.
- PhD in progress : Antoine Hochart, inscrit à l’École Polytechnique, depuis octobre 2013, directeur de thèse: Stéphane Gaubert, codirection: Marianne Akian.
- PhD in progress : Eric Fodjo, inscrit à l’École Polytechnique, depuis octobre 2013, directeur de thèse: Marianne Akian.

- PhD in progress : Nikolas Stott, inscrit à l'École Polytechnique, depuis octobre 2014, directeur de thèse: Stéphane Gaubert, codirection: Xavier Allamigeon, Éric Goubault et Sylvie Putot.
- PhD in progress : Vianney Boeuf, inscrit à l'École Polytechnique, depuis octobre 2014, directeur de thèse: Stéphane Gaubert, codirection: Stéphane Raclot (BSPP), Marianne Akian, Xavier Allamigeon.
- PhD in progress : Mateusz Skomra, inscrit à l'Univ. Paris Saclay depuis Oct. 2015, directeur de thèse: Stéphane Gaubert, codirection: Xavier Allamigeon.
- PhD in progress : Jean-Bernard Eytard, inscrit à l'Univ. Paris Saclay depuis Oct. 2015, directeur de thèse: Stéphane Gaubert, codirection: Marianne Akian et Mustapha Bouhtou.
- M2 internship de Mateusz Skomra.
- Enseignement d'approndissement (EA) de l'École Polytechnique (élèves de troisième année) d'Alexandre Hannebelle et Armelle Patault (Jan-Mars), portant sur une étude d'évaluation de performance de l'évolution projetée de la chaîne de réponse aux appels d'urgence. Ce travail était cosupervisé avec le Cdt Stéphane Raclot (BSPP), Régis Reboul (Préfecture de Police) et Philippe Robert (projet Inria RAP), avec le concours de Xavier Allamigeon, et Vianney Boeuf. Ce travail a été poursuivi par un autre EA (Sep–), de Paul Dejan de la Bâtie et de Sarah Petroff, coencadré par Xavier Allamigeon, avec le concours de Vianney Boeuf. Voir Section 7.5.5 pour plus de détails.

10.2.3. Jurys/Committees

- M. Akian
  - Membre du jury de concours Inria CR2 de l'Inria Saclay–Île-de-France.
  - Jury de thèse de Mohamed Assellaou (ENSTA, Palaiseau, décembre 2015).
  - Jury de thèse d'A. Marchesini (X, Palaiseau, décembre 2015).
- S. Gaubert
  - Membre de la commission de recrutement en informatique à l'École Polytechnique.
  - Membre du jury de concours Inria CR2 de l'Inria Lille.
  - Membre du jury national de concours Inria DR2.
  - Jury de thèse de Xavier David Henriet (cotutelle Univ. Angers et TU Berlin, rapporteur, 2015).
  - Jury de thèse de Simone Naldi (INSA Toulouse, rapporteur, 2015).
  - Jury d'HdR de B. Cottenceau (Angers, 2015; rapporteur).
  - Jury de thèse d'A. Marchesini (X, Palaiseau, décembre 2015).

10.3. Popularization

- J.P. Quadrat :
  - Administre le site d'intérêt général http://www.maxplus.org, dédié à l'algèbre max-plus.
- V. Boeuf
  - Article dans la brochure "La recherche en mathématiques appliquées" diffusée à des lycéens d'Île de France, exposant la plateforme téléphonique pompiers + police.
- N. Stott
  - Finaliste Paris-Saclay du concours MT180 "Ma thèse en 180 secondes".

10.4. Participation à des colloques, séminaires/Conférences, Seminars

- M. Akian

  - STORY - UCB Workshop on Stochastic and Robust Optimization, Jan. 26-27, 2015. Titre de l'exposé: "Value iteration and Policy iteration algorithms for stochastic control".
  - Séminaire jeux de l'IHP, 23 mars. Titre de l'exposé: "Complexité de l'itération sur les politiques pour les jeux stochastiques à somme nulle".
  - Bar-Ilan Algebra Seminar, Bar Ilan Univ., June 24, 2015. Titre de l'exposé: "Majorization inequalities for valuations of eigenvalues using tropical algebra".
  - SIAM Conference on Control and its Applications (SIAM CT'15), Paris, 8-10 juillet. Titre de l'exposé: "Ergodicity Condition for Zero-Sum Games".
  - 4th International Conference on Matrix methods in Mathematics and Applications (MMMA-2015), Moscow, August 24-28, 2015. Titre de l'exposé: "Majorization inequalities for valuations of eigenvalues using tropical algebra".
  - SIAM Conference on Applied Linear Algebra (SIAM LA), Atlanta, Oct. 26-30, 2015. Titre des exposés: "Hungarian Scaling of Polynomial Eigenproblems" et "Tropical Bounds for the Eigenvalues of Block Structured Matrices".
- X. Allamigeon
  - SIAM Conference on Control and its Applications (SIAM CT'15), Paris, 8-10 juillet 2015. Titre de l'exposé: "Long and winding central paths"
  - Journée TropiX, Ecole Polytechnique, Palaiseau, 26 novembre 2015. Titre de l'exposé: "Long and winding central paths"
- V. Boeuf
  - 13th International Conference on Formal Modeling and Analysis of Timed Systems (FORMATS 2015), Madrid, September 2-4. Titre de l'exposé : "Performance Evaluation of an Emergency Call Center: Tropical Polynomial Systems applied to Timed Petri Nets"
  - Séminaire des doctorants du CMAP.
  - PGMO days 2015, 27-28 octobre, École polytechnique. Titre de l'exposé : "Performance Evaluation of an Emergency Call Center: Tropical Polynomial Systems applied to Timed Petri Nets".
- S. Gaubert
  - SIAM Conference on Control and its Applications (SIAM CT'15), Paris, 8-10 juillet. Titre de l'exposé: "Tropicalizing Semialgebraic Pivoting Rules, Or How to Solve Mean Payoff Games in Polynomial Time on Average".
  - SIAM Conference on Control and its Applications (SIAM CT'15), Paris, 8-10 juillet. Titre de l'exposé: "A Hamilton-Jacobi Approach to Barabanov Norms of Positive Linear Systems."
  - Exposé au Workshop on Tropical Geometry, Bar Ilan, Dec 2015, "Tropicalizing linear programming".
- A. Hochart
  - Séminaire des thésards, École polytechnique, 12 juin. Titre de l'exposé: "Hypergraph conditions for the solvability of the ergodic equation for zero-sum games".
  - SIAM Conference on Control and its Applications (SIAMCT15), Paris, 8-10 juillet. Titre de l'exposé: "Generic uniqueness of the bias vector of mean-payoff zero-sum games".
  - PGMO Days 2015, ENSTA ParisTech, 27 et 28 octobre. Titre de l'exposé: "Hypergraph conditions for the solvability of the ergodic equation for zero-sum games".
  - 54th IEEE Conference on Decision and Control (CDC 2015), Osaka, Japon, 15-18 décembre. Titre de l'exposé: "Hypergraph conditions for the solvability of the ergodic equation for zero-sum games".

- A. Marchesini
  - ICIAM 2015, August 10-14, 2015, Beijing, China. Titre de l'exposé: "Tropical diagonal scaling for asymptotic eigenvalue problems"
- A. Niv
  - January 14, 2015, Tropical geometry seminar, Jussieu Institute, University Pierre and Marie Curie. Titre de l'exposé: "Tropical definite forms, normal forms and the quasi-inverse".
  - March 26, 2015, Optimization seminar, School of Mathematics, University of Birmingham. Titre de l'exposé: "Properties of the Characteristic Maxpolynomial".
  - April 18, 2015, Tropical algebraic geometry symposium, Brown University. Titre de l'exposé: "Factorization of Tropical Matrices".
  - June 17, 2015, Algebra seminar, Mathematics department, Bar-Ilan University. Titre de l'exposé: "Tropical totally non-negative matrices".
- N. Stott
  - SIAM Conference on Control and its Applications (SIAM CT'15), Paris, 8-10 juillet. Titre de l'exposé: "Eigenvectors of Non-Linear Maps on the Cone of Positive Semidefinite Matrices Application to Stability Analysis"
  - EMSOFT 2015, Amsterdam, 4-10 octobre. Titre de l'exposé : "A Scalable Algebraic Method to Infer Quadratic Invariants of Switched Systems"
  - SIAM Conference on Applied Linear Algebra (SIAM LA), Atlanta, Oct. 26-30, 2015. Titre de l'exposé: "Maximal Lower Bounds in the Loewner order".
- C. Walsh
  - Séminaire du CMAP, Ecole Polytechnique, 10 novembre 2015. Titre de l'exposé: "The Tropical Martin boundary".

MCTAO Project-Team

9. Dissemination

9.1. Teaching - Supervision - Juries

PhD: Helen Heninger, *Étude des solutions du transfert orbital avec poussée faible dans le probleme des deux ou trois corps*, defended October 4, 2015, Université de Nice Sophia Antipolis, advisors: Bernard Bonnard and Jean-Baptiste Pomet.

PhD in progress: Jérémy Rouot, subject: *Moyennisation en contrôle et en contrôle optimal, effet des perturbations non périodiques*, Université de Nice Sophia Antipolis, started october, 2013, advisors: Bernard Bonnard and Jean-Baptiste Pomet.

PhD in progress: Zeinab Badredine, subject: *Techniques d'intégrabilité en dynamique des spins et applications au contrôle optimal*, Université de Bourgogne, started october, 2014, advisors: Bernard Bonnard and Ludovic Rifford.

MSc: Sofya Maslovskaya, *Finsler metric associated with average minimum time problems*, Ensta ParisTech, supervisors: Jean-Baptiste Pomet.

NECS Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific events organisation

10.1.1.1. Member of the organizing committees

Alain Kibangou was member of the organizing committe of 'Premières Journées de l'Automatique du GDR MACS', 5-6 October 2015, Grenoble.

10.1.2. Scientific events selection

10.1.2.1. Member of the conference program committees

Alain Kibangou was a member of the program committee for the International Workshop on Big Data and Smart Sustainable Society (BigData-2015), http://www2.docm.mmu.ac.uk/STAFF/L.Han/BigData-2015/index.htm, held in conjunction with the 14th IEEE International Conference on Ubiquitous Computing and Communications (IUCC-2015), http://cse.stfx.ca/~iucc2015.
Hassen Fourati was a member of the International and Scientific Program Committees of:

- 4th International Conference on Systems and Control (ICSC'15), Hammamet, Tunisia, April 28-30, 2015 (http://lias.labo.univ-poitiers.fr/icsc/icsc2015/index.php);
- International Electrical and Computer Engineering Conference IECEC'15, Setif, Algeria, May 23-25, 2015 (http://www.univ-setif.dz/IECEC2015);
- 16th International Conference on Sciences and Techniques of Automatic Control and Computer Engineering STA'2015, Monastir, Tunisia, December 21-23, 2015.

10.1.2.2. Reviewer

Team members have been reviewers for many conferences (including the most prestigious ones in their research area): IEEE Conference on Decision and Control CDC, European Control Conference ECC, American Control Conference ACC, European Signal Processing Conference, IEEE International Conference on Robotics and Automation ICRA, IEEE/RSJ International Conference on Intelligent Robots and Systems IROS, IFAC Workshop on Distributed Estimation and Control in Networked Systems (NecSys).

10.1.3. Journal

10.1.3.1. Member of the editorial boards

Carlos Canudas de Wit is Associate Editor of IEEE Transactions on Control of Networks Systems IEEE-TCNS (since June 2013), Associate Editor of IEEE Transactions on Control System Technology IEEE-TCST (since January 2013), and Editor of the Asian Journal of Control AJC (since 2010).

10.1.3.2. Reviewer

Team members have been reviwers for many journals (including the most prestigious ones in their reserach area): IEEE Trans. on Automatic Control, IEEE Trans. on Control of Network Systems, IEEE Trans. on Signal Processing, Automatica, IEEE Signal Processing Letters, Systems and Control Letters, IEEE Transactions on Information Theory, Journal of the Franklin Institute, Journal of Process Control, Elsevier Signal Processing, Int. Journal of Robust and Nonlinear Control, IET Communications, IET Wireless Sensor Networks. IEEE/ASME Trans. on Mechatronics, IEEE Trans. on Instrumentations and Measurements, IEEE Sensors journal, Sensors, IEEE Trans. on Robotics, Micromachines.

10.1.4. Invited talks

- C. Canudas de Wit, *Nash Game Based Distributed Control Design for Balancing of Traffic Density over Freeway Networks*, Transportation seminar series of the Institute of Transportation Studies (ITS) and the Transportation Program of the Civil and Environmental Engineering Department at the University of California, Berkeley, Oct. 2015.
- C. Canudas de Wit, *Distributed Optimal Traffic Control*, IPAM Workshop 'New Directions in Mathematical Approaches for Traffic Flow Management – Workshop III-Traffic Control', Oct. 2015.
- F. Garin, *Towards on-line optimization of urban traffic lights*, IPAM Workshop 'New Directions in Mathematical Approaches for Traffic Flow Management – Workshop III-Traffic Control', Oct. 2015.

10.1.5. Leadership within the scientific community

C. Canudas de Wit has been president of the European Control Association (EUCA) until June 2015, and is now Past-president and member of the EUCA Council.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Master: F. Garin, Distributed Algorithms and Network Systems, 13.5h, M2, University Joseph Fourier, France.

Licence: H. Fourati, Informatique Industrielle, 105h, L1, IUT 1 (GEII), University Joseph Fourier, France;

Licence: H. Fourati, Réseaux locaux industriels, 50h, L1 et L2, IUT1 (GEII), University Joseph Fourier, France.

Licence: H. Fourati, Automatique, 61,5h, L3, UFR physique, University Joseph Fourier, France.

Licence: H. Fourati, Automatique échantillonnée, 15h, L2, IUT 1 (GEII), University Joseph Fourier, France.

Licence: A. Kibangou, Automatique, 52h, L2, IUT1(GEII1), University Joseph Fourier, France.

Licence: A. Kibangou, Mathématiques, 33h, L2, IUT1 (GEII1), University Joseph Fourier, France.

Licence: A. Kibangou, Mathématiques, 44h, L1, IUT1 (GEII1), University Joseph Fourier, France.

Licence: A. Kibangou, Automatique, 16h, L3, IUT1 (GEII1), University Joseph Fourier, France

10.2.2. Supervision

PhD: Thi-Minh Dung Tran, Methods for finite-time average concensus protocols design, network robustness assessment and network topology reconstruction, Grenoble University, March 26th, 2015

PhD: Ruggero Fabbiano, Collaborative source seeking-seeking control, Grenoble University, May 25th, 2015.

PhD: Giovanni de Nunzio, Traffic eco-management in urban traffic networks, Grenoble University, Oct. 2nd, 2015.

PhD in progress: Aida Makni, Fusion de données inertielles et magnétiques pour l'estimation de l'attitude sous contrainte énergétique d'un corps rigide accéléré, from Oct. 2012, co-advised by H. Fourati, A. Kibangou and C. Canudas de Wit.

PhD in progress: Simon Gerwig, Collaborative, reconfigurable and resilient control for hydro-electric power-plants, from Feb. 2014, co-advised by C. Canudas de Wit, F. Garin and B. Sari (Alstom).

PhD in progress: Pietro Grandinetti, Control of large-scale traffic networks, from Apr. 2014, co-advised by C. Canudas de Wit and F. Garin.

PhD in progress: Andrés Alberto Ladino Lopez, Robust estimation and prediction in large scale traffic networks, from Oct. 2014, co-advised by C. Canudas de Wit, A. Kibangou and H. Fourati.

PhD in progress: Thibaud Michel, Mobile Augmented Reality Applications for Smart Cities, from Nov. 2014, co-advised by N. Layaïda, H. Fourati and P. Geneves.

PhD in progress: Sebing Gracy, Cyber-physical systems: a control-theoretic approach to privacy and security, from Oct. 2015, co-advised by A. Kibangou and F. Garin.

PhD in progress: Stéphane Durand, Coupling distributed control and game theory: application to self-optimizing systems, from Oct. 2015, co-advised by B. Gaujal and F. Garin.

10.2.3. Juries

- C. Canudas was president of the Ph.D. defense committee of Pascal Combes, École Nationale Supérieure des Mines de Paris, Spécialité Mathématique et Automatique, Dec. 3rd, 2015
- A. Kibangou was external reviewer and committee member of two master thesis defenses for University of Pretoria: Roy Fisher (July 2015) and Daniel Ramotsoela (November 2015).
- F. Garin was committee member of the master thesis defense of Hourai Bettahar, MiSCIT Master, Grenoble, July 2015.

10.3. Popularization

The team's work on traffic prediction and control, with Grenoble Traffic Lab, has been popularized as follows:

- an interview reported in an article in CNRS 'Le Journal', and a related video (in French, see https://lejournal.cnrs.fr/articles/quelle-voiture-pour-demain)
- a video prepared by Inria for RII–Rencontres Inria-Industrie (in English, see https://www.youtube.com/watch?v=Uia4Y-9c6k0&index=5&list=PLV1fJrIaqWlMe5savY102Oz-M_hVmXg30).
- H. Fourati gave a talk 'Prédiction et contrôle du trafic routier sur Grenoble : une solution automatisée avec MATLAB' at the 'journée Nouveautés MATLAB 2015a, Data Analytics & Calcul Parallèle', Grenoble, March 26th.

NON-A Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. Member of the organizing committees

- J.-P. Richard, a member of NOC of 20th IFAC World Congress, Toulouse, France, 10-14 July 2017

9.1.2. Scientific events selection

9.1.2.1. Member of the conference program committees

- J.-P. Richard, Associate Editor, EUCA-IEEE ECC'15, Linz, Austria (14th European Control Conference) June 15-17, 2015, http://www.ecc15.at
- J.-P. Richard, Associate Editor, IEEE MED'2015, Torremolinos, Spain (23rd IEEE Mediterranean Conference on Control and Automation) June 16-19, 2015, http://med2015.uma.es
- J.-P. Richard, Associate Editor, IFAC TDS'2015, Ann Arbor, MI, USA (12th IFAC Workshop on Time Delay Systems), Univ. of Michigan, 28-30 juin 2015, http://me.engin.umich.edu/dirifac/
- Gang Zheng, Associate Editor, SIAM CT15, Paris, France (SIAM Conference of Control & Its Applications 2015), 8-10 July 2015, http://www.siam.org/meetings/ct15/

9.1.2.2. Reviewer

The members of NON-A team are reviewers and contributors of all top-ranked conferences in the field of automatic control (IEEE Conference on Decision and Control, IFAC World Congress, European Control Conference, American Control Conference, etc)

9.1.3. Journal

9.1.3.1. Member of the editorial boards

- T. Floquet, Member of Editorial Board, Mathematical Problems in Engineering (Impact Factor: 1.082)
- A. Polyakov, Member of Editorial Board, Journal of Optimization Theory and Applications (Impact Factor: 1.406)
- A. Polyakov, Associate Editor, Journal of the Franklin Institute (Impact Factor: 2.260)
- A. Polyakov, Editor, International Journal of Robust and Nonlinear Control (Impact Factor: 3.176)

9.1.3.2. Reviewer - Reviewing activities

The members of NON-A team are reviewers of all top-ranked journals in the field of automatic control (IEEE Transactions on Automatic Control, Automatica, SIAM Journal of Control and Optimization, International Journal of Robust and Nonlinear Control, etc)

9.1.4. Invited talks

- Andrey Polyakov has been invited to give a talk for the conference "Optimization and Applications in Control and Data Science", 13-15 May 2015, Moscow, Russia, (https://sites.google.com/site/polconf/).

9.1.5. Leadership within the scientific community

The NON-A team is the leader in the field of non-asymptotic control and estimation using homogenety framework. For European Control Conference 2015 the tutorial session "Homogneity in Control: Geometry and Applications" has been organized and contributed by members of NON-A team.

9.1.6. Research administration

- Wilfrid Perruquetti, directeur adjoint scientifique de l'INS2I, CNRS

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence : Lotfi Belkoura; Automatique (systèmes linéaires monovariables)(75h), Introduction à la Robotique (25h), L3; Lille 1; France

Licence : Gang Zheng; TP Automatic control (16h), L2; EC Lille; France

Licence : Rosane Ushirobira; TP Automatic control (16h), L2; TP Numerical Analysis (20h), L1; EC-Lille and Polytech Lille; France

Master : Jean-Pierre Richard; Systèmes dynamiques (30h), Métiers de la recherche (4h), Modélisation des systèmes complexes(12h), Séminaire episteme (24h); EC-Lille; France

Master : Lotfi Belkoura; Représentation d'état (55h), M1; Projets (10h), M1; Introduction aux distributions (10h), M2; Lille 1; France

Master : Rosane Ushirobira; Probability and Statistics (20h); M2; EC-Lille; France

Master : Denis Efimov; TD Automatic control (12h), M1; Analysis of Nonlinear Systems (28h), M2, Lille 1; France

9.2.2. Supervision

HdR : Gang Zheng, "Analyse d'observabilité et synthèse d'observateur pour des systèmes dynamiques complexes", "Université Lille de Sciences et Technologies", 26 November 2015

PhD: Guo Qi, "Estimation dynamique des paramèters de robots manipulateur", EC-Lille, 8 December 2015, supervisors are W. Perruquetti and M. Gautier

PhD: Nehla Debbabi, "Approches algébriques et Théorie des valeurs extrêmes pour la détection de ruptures : Applications aux signaux biomédicaux", Tunis, 14 December 2015

PhD: Matteo Guerra, "Supervisory control of collective motion of mobile robots", EC-Lille, 17 December 2015, supervisors are W. Perruquetti, D. Efimov and G. Zheng

PhD in progress : Zilong Shao, "Oscilatory control of robot manipulator", 2013–..., supervisors are W. Perruquetti, D. Efimov and G. Zheng

PhD in progress : Hafiz Ahmed, "Identification and modeling of circadian rhythms for oysters", 2013–..., supervisors are D. Efimov, R. Ushirobira and D. Tran

PhD in progress : Essaid Edjekouane, "Cyber-physical systems", 2012–..., supervisors are J.P. Barbot, S. Riachy and M. Ghanes

PhD in progress: Zohra Kader, "Observation et commande des systèmes affines à commutation", 2014-..., supervisors are L. Belkoura, C. Fiter, L. Hetel

PhD in progress: Maxime Feingesicht, "Dynamic Observers for Control of Separeted Flows", 2015-..., supervisors are J.-P. Richard, F. Kerherve, A. Polyakov

PhD in progress: Francisco Lopez Ramirez, "Control and Estimation via Implicit Homogeneous Lyapunov Function", 2015-..., supervisors are W. Perruquetti, D. Efimov and A. Polyakov

PhD in progress: Tatiana Kharkovskaia, "Interval Observers for Distributed Parametr Systems", 2015-..., supervisors are D. Efimov, J.-P. Richard, A. Kremlev

PhD in progress: Langueh Désiré Kokou, "Inversion a gauche, singularités d'inversion, immersion et formes normales pour les systemes dynamiques", 2015-..., supervisors are Thierry Floquet and Gang Zheng

PhD in progress: Gabriele Perozzi, "Save exploration of aerodynamic field by microdron", 2015-..., supervisors are Denis Efimov and Jean-Marc Biannic

PhD in progress: Guillaume Rance, "Etude de systèmes flexibles a retard et application aux viseurs", 2015-..., the supervisors are Alban Quadrat and Hugues Mounier

9.2.3. Juries

The team members are also involved in various examination committees of Theses and Habilitations, recruitment committees, in France and abroad.

QUANTIC Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific events organisation

Benjamin Huard organized and was a member of the program committee of two international conferences in 2015: the CTCQED15 conference in Dresden (1 week in June/July) and the Third Conference on Quantum Thermodynamics in Porquerolles (1 week in October).

Alain Sarlette has organized an invited session on "quantum control" at IEEE Conference on Decision and Control (CDC) 2015 in Osaka.

8.1.2. Journal

8.1.2.1. Member of the editorial boards

Mazyar Mirrahimi is an associate editor of System and Control Letters.

Pierre Rouchon is an associate editor of SIAM J. of Control and Optimization.

8.1.2.2. Reviewer - Reviewing activities

Benjamin Huard served as a referee for Nature, Science, Physical Review Letters and other physics journals.

François Mallet served as a referee for Physical Review Letters .

Mazyar Mirrahimi served as a referee for Nature Comm., Reviews of Modern Physics, and Physical Review Journals.

Pierre Rouchon served as referee for IEEE Trans. Automatic Control, Automatica, System and Control Letters, and New J. of Physics.

Alain Sarlette has been a reviewer for several automatic control and dynamical systems journals and conferences.

8.1.3. Invited talks

Benjamin Huard gave an invited talk at the Colloquium of the Université de Sherbrooke, Canada, June 2015.

Benjamin Huard gave an invited talk at the PIERS conference, Prague, July 2015.

Benjamin Huard gave an invited talk at the Colloquium of the Physics department, University of Basel, Switzerland, Oct 2015.

Benjamin Huard gave an invited talk at the workshop of University of Tokyo- Ecole Normale Superieure, Tokyo, Japan, Nov 2015.

Philippe Campagne-Ibarcq gave an invited talk at the "Congrès du GDR IQFA", Palaiseau, France, Novembre 2015.

Philippe Campagne-Ibarcq gave an invited talk at the American Physical Society's March Meeting in Saint Antonio, Texas, March 2-6.

Benjamin Huard and Mazyar Mirrahimi gave invited talks at the conference organized for the 30 years of Quantronics: Paris, June 22-25.

François Mallet gave an invited talk at the 14th International Conference on Squeezed States and Uncertainty Relations In Gdansk, 29 June- 3 July.

Mazyar Mirrahimi gave an invited talk at the Frontiers of Quantum and Mesoscopic Thermodynamics (FQMT) conference in Prague: July 27-August 1.

Mazyar Mirrahimi gave an invited talk at the Gordon Research Conference on Quantum Control of Light and Matter: Mount Holyoke College, MA, August 2-7.

Mazyar Mirrahimi gave an invited talk at Quantum Science Symposium in Cambridge, MA: Sept 21-22.

Pierre Rouchon gave an invited talk at the Workshop on Control Systems and Identication Problems January 12-16, 2015 in Valparaso, CHILE.

Mazyar Mirrahimi and Pierre Rouchon gave invited talks at the Oberwolfach Workshop on Mathematical Methods in Quantum Molecular Dynamics.

Pierre Rouchon gave an invited talk at the PRACQSYS meeting in Sydney: 20-25 July 2015.

Alain Sarlette gave an invited talk at the International Conference on Industrial and Applied Mathematics (ICIAM) in Beijing, August 10-14.

Alain Sarlette gave an invited talk at the second international conference on Geometric Science of Information in Palaiseau, France, Oct 28-30.

8.1.4. Scientific expertise

Benjamin Huard was a member of the ANR CES30 committee in 2015.

Mazyar Mirrahimi is a member of the Technical Committee on "Distributed Parameter Systems" in IFAC (International Federation of Automatic Control).

Pierre Rouchon is a member of the "Conseil Scientifique du Conservatoire National des Arts et Metiers" since 2014.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Benjamin Huard has given a course (20 hours) entitled “Quantum fluctuations and measurement” in the Master ICFP (International Centre for Fundamental Physics) of ENS Paris, UPMC, Paris 7 and Orsay.

Benjamin Huard has coordinated an experimental project (40 hours) entitled “Measuring the quantum of conductance across an ato” at ENS Paris for Physics students in L3.

Benjamin Huard has taught a “préceptorat” (16 hours) in Quantum Physics for L3 students in ESPCI, Paris.

François Mallet has taught approximately 192 hours as a university associate professor. Besides undergrad teaching, he has done classes on quantum physics (30 hours) and solid state physics (15 hours) for M1 at UPMC, and quantum transport for M2 ICFP (20 hours).

Mazyar Mirrahimi and Pierre Rouchon have given a course (20 hours) entitled "UE : Analyse et contrôle de systèmes quantiques " in the "Master de sciences et technologies, mention mathématiques et applications, Université Pierre et Marie Curie".

Pierre Rouchon has given a course (25 hours) entitled "Cryptographie, théorie des nombres et information quantique" at Mines Paristech.

Pierre Rouchon has given a course (12 hours) entilted "Modelling, simulation and feedback of open quantum systems " in the "module d’Ingénierie Quantique" of the "parcours doctoral de PSL-ITI".

Pierre Rouchon and Alain Sarlette gave a one week course (22 hours) on feedback control of quantum systems in the European Embedded Control Institute in 23-27 March 2015.

Alain Sarlette has given a master course on “Probabilistic robotics” at Ghent University (30 hours).

8.2.2. Supervision

PhD: Philippe Campagne-Ibarcq successfully defended his PhD thesis at ENS in June 2015. He presented his works on “Measurement back action and feedback in superconducting circuits”. (advisor: Benjamin Huard).

PhD: Pascal Combes, Mines Paristech. “Control of electrical drive” with Schneider-Electric. He has obtained his PHD in December 2015. (advisors: Pierre Rouchon and Philippe Martin).

PhD in progress: Danijela Markovic. ENS. “Quantum information protocols with microwave quantum optics”. Sept 2014. (advisors: Benjamin Huard and François Mallet).

PhD in progress: Nathanaël Cottet. ENS. “Quantum heat engines based on superconducting circuits”. Sept 2015. (advisor: Benjamin Huard).

PhD in progress: Quentin Ficheux. ENS. “Thermodynamics of quantum information”. Sept 2015. (advisors: Benjamin Huard and Zaki Leghtas).

PhD in progress: Joachim Cohen. ENS. “Fault-tolerant quantum computation for experiments in circuit QED”. Nov 2013 (advisor: Mazyar Mirrahimi).

PhD in progress: Noad Hamze El Badaoui. Mines Paristech. “Real-time estimation for Laser Gyroscope” with Thales. January 2013. (advisors: Pierre Rouchon and Philippe Martin).

PhD in progress: Pierre Six. Mines Paristech. “Parameter and quantum state estimation relying on quantum measurements”. Sept 2013. (advisor: Pierre Rouchon).

PhD in progress: Rémi Azouit. Mines Paristech. “Quantum circuits, Input/Output theory and adiabatic elimination”. Sept 2014. (advisor: Pierre Rouchon).

PhD in progress: Alain Sarlette is co-supervising 3 PhD students with his former institution UGent (Simon Apers, Zhifei Zhang, Arash Farnam). Simon Apers is working on (quantum) network algorithms accelerations and intends to address other quantum control questions.

8.2.3. Juries

Benjamin Huard was a member the PhD defense committees of Kevin Lalumière (Université de Sherbrooke, Canada), Eric Holland (Yale University, New Haven, CT USA) and Pasi Lähteenmäki (Aalto University, Finland).

Pierre Rouchon was a member the PhD defense committees of Achraf Kallel (Mines ParisTech, Sophia Antipolis), Axel Barrau (Mines ParisTech), Giovanni De Nunzio (Université de Grenoble), Philippe Laurent (Université de Nantes).

8.3. Popularization

Benjamin Huard gave a talk at Journée X-ENS, Ecole Polytechnique, Palaiseau, France (May 2015) in front of an assembly of professors in “classes prépas”. He also gave a seminar for students at ENS Paris (Jan 2015).

Benjamin Huard, François Mallet and Mazyar Mirrahimi gave interviews for newspapers, magazines and websites (Libération, La Recherche, Phys.org, les Echos, 01net, Silicon).

Benjamin Huard wrote an article for La Recherche: B Huard, Les microprocesseurs du futur, La Recherche 501, 62 (Juillet 2015).

Pierre Rouchon gave a lecture on "Stabilisation par feedback quantique de la boite à photons du LKB" (May 21, 2015) during the "journées de l’école doctorale des Universités de Bourgogne et de Franche Comté".

Alain Sarlette is answering questions about quantum control and quantum computing on the website "ik-heb-een-vraag.be" where Flemish layman can ask questions to scientific experts.

SPHINX Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific events organisation

10.1.1.1. General chair, scientific chair

Together with Colin Guillarmou, Matti Lassas and Jérôme Le Rousseau, David Dos Santos Ferreira organized an IHP trimester on Inverse Problems in April-June 2015 (more than 100 participants).

Takahashi and Tucsnak organized a workshop “Infinite dimensional systems in fluid mechanics and biology’, from December 7th to December 11th in the Guadeloupe Island.

10.1.2. Scientific events selection

10.1.2.1. Member of the conference program committees

- Xavier Antoine was a member of the program committee of Waves 2015, Germany, Karlsruhe, July 20-24, 2015.
- Thomas Chambrion is a member of the program committee of IFAC CPDE 2016.

10.1.2.2. Reviewer

- Thomas Chambrion is a regular reviewer for papers submitted to IEEE CDC (2 papers in 2015) and ACC (2 papers in 2015).
- David Dos Santos Ferreira has written reviews for papers submitted to Annales Scientifiques de l’École Normale Supérieure and Annales de l’Institut Fourier.

10.1.3. Journal

10.1.3.1. Member of the editorial boards

Xavier Antoine has been in charge of Numerical Analysis in the editorial board of “Mathématiques Appliquées pour le Master/SMAI” since 2014.

10.1.3.2. Reviewer - Reviewing activities

Most of the members are reviewer for major journals in the fields.

- Xavier Antoine is a referee for about 15 journal papers a year in “Journal of Computational Physics” and various SIAM journals.
- Thomas Chambrion is a regular referee for the journals “Automatica” and “IEEE Transactions on Automatic Control”.
- Julie Valein is a regular referee for the journals “Mathematical Control and Related Fields” and “Discrete and Continuous Dynamical Systems A”.

10.1.4. Invited talks

Thomas Chambrion was organizer and chairman of the invited minisymposium “Quantum Control” in the conference SIAM CT 2015, organized in Paris.

Xavier Antoine has given invited talks in the following scientific events

- Minisymposium ”Numerical Simulation of Quantum and Kinetic Problems”, ICCP9, Singapore, January 2015.
- Workshop "Mathematical physics for cold atoms", Grenoble, March 2015.
- Semaine d’Analyse Numérique de Besançon : ”XFEM, Nitsche FEM, FEM Adaptative, Conditions aux Limites Artificielles”, June 2015.
- ”Complex phenomena in optics: theory and experiments”, November 2015 Besançon,

David Dos Santos Ferreira has given talks in the following conferences:

- Applied Inverse Problems, Helsinki, May 2015.
- School on Fourier Integral Operators, Ouagadougou, Burkina Faso.

Alexandre Munnier has participated to the following workshops as an invited speaker:

- Waveguides: Asymptotic Methods and NumericalAanalysis, Naples, May 2015.
- Third Workshop "Probl'emes Inverses et Doamines Associés", Marseille, December 2015.

Karim Ramdani participated as an invited speaker to the following workshops and conferences:

- Workshop of GDRI ReaDiNet : "Reaction-Diffusion Systems Arising in Biology", (Nancy, December 16–17, 2015).
- Conference "Stability and Reconstruction issues in Inverse Problems" (IHP, Paris, June 29 — july 4, 2015).
- Workshop DELSyS : Observing and controlling complex dynamical systems (Grenoble, November 12–14, 2014).

Julie Valein gave an invited talk at "Workshop on control and inverse problems", Besançon, March 2015.

10.1.5. Scientific expertise

- Xavier Antoine was in charge of the ANR mathematics program until August 2015.
- Thomas Chambrion belongs to the selection panel for the Natural Sciences and Engineering Research Council of Canada.
- Julie Valein belongs to the ANR expert panel for ANR JCJC.

10.1.6. Research administration

Xavier Antoine has been head of IECL since September 2015.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Most of the members of the team have a teaching position at Université de Lorraine.

- Xavier Antoine teaches at Mines Nancy and ENSEM (Université de Lorraine), L3-M1, 96 hours.
- Thomas Chambrion teaches at ESSTIN (Université de Lorraine), L1-L2, 192 hours.
- David Dos Santos Ferreira teaches at UFR STMIA (Université de Lorraine), 96 hours(délégation CNRS).
- Alexandre Munnier teaches at UFR STMIA (Université de Lorraine), 192 hours.
- Jean-François Scheid teaches at Telecom Nancy (Université de Lorraine), 192 hours.
- Julie Valein teaches at ESSTIN (Université de Lorraine), L1-L2, 96 hours (maternity leave).

10.2.2. Supervision

PhD in progress : Chi-Ting Wu, Contrôle en temps optimal pour quelques EDP réversibles en temps, since October 2012, Marius Tucsnak and Julie Valein.
PhD in progress : Boris Caudron, CIFRE thesis with Thales, since June 2015, Xavier Antoine.

10.2.3. Juries

- Xavier Antoine was referee of the PhD thesis of E. Veneros (Université de Genève, May 2015) and M. Lecouvez (Ecole Polytechnique, July 2015). He was also referee of the HDR of F. Triki (Université de Grenoble, December 2015).
- Karim Ramdani was member of the PhD committees of Camille Carvalho (Ecole Polytechnique, December 4th, 2015) and Simon Marmorat (Université Paris-Saclay, November 12th, 2015).

10.3. Popularization

Karim Ramdani is interested in economic models of scientific publishing. He has given several talks to raise awareness of researchers on the risks of author-pays publication model.

DOLPHIN Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific events organisation

10.1.1.1. General chair, scientific chair

- L. Jourdan, C. Dhaenens, M-E. Marmion: Learning and Intelligent OptimizatioN Conference; LION 9, Lille, FRANCE, Jan. 12-15, 2015.
- N. Melab: Chair of the McM'2015 workshop (Multi/Many-core computing for parallel Metaheuristics) organized in conjunction with MIC'2015, Agadir, June 7^{th} 2015.
- N. Melab: Chair of 5 simulation and HPC-related seminars at Lille 1 oct-dec. 2015 (UPMC, Nvidia, LATMOS/UPMC, VU Leuven, Intel).
- E-G. Talbi: General chair MIC'2015 Int. Conf. on Metaheuristics, Agadir, Morocco, June 2015.

10.1.1.2. Member of the organizing committees

- D. Brockhoff: Lorentz Center workshop "SAMCO - Surrogate-Assisted Multi-Criteria Optimization", Leiden, Netherlands together with Michael Emmerich, Boris Naujoks, and Tobias Wagner, March 2016
- D. Brockhoff: special session on "Evolutionary Multiobjective Optimization" at the MCDM'2015 conference, Hamburg, Germany, together with Joshua Knowles, Boris Naujoks, and Karthik Sindhya, August 2015
- D. Brockhoff: GECCO 2015 workshop entitled "Blackbox Optimization Benchmarking", Madrid, Spain, together with Youhei Akimoto, Anne Auger, Nikolaus Hansen, Olaf Mersmann, and Petr Pošík, July 2015
- D. Brockhoff: CEC 2015 special session entitled "Blackbox Optimization Benchmarking", Sendai, Japan, together with Youhei Akimoto, Anne Auger, Nikolaus Hansen, Olaf Mersmann, and Petr Pošík, May 2015
- L. Jourdan: MIC'2015 Int. Conf. on Metaheuristics and Nature Inspired Computing, Agadir, Morocco, June 2015.
- L. Jourdan: EA'2015 Biennial International Conference on Artificial Evolution Publicity chair
- A. Liefooghe: CEC 2015 special session entitled "Fitness landscape analysis and search space structure", Sendai, Japan, together with Hernan Aguirre, Kiyoshi Tanaka and Sébastien Verel, May 2015

10.1.2. Scientific events selection

10.1.2.1. Chair of conference program committees

- E-G. Talbi: Track chair « Big data and smart applications » of IIT'2015 11th IEEE Int. Conf. on Innovation in Information Technology, Dubai, Nov 2015.
- E-G. Talbi: Program chair IEEE NIDISC'2015 Workshop on Nature Inspired distributed Computing, Hyderabad, India, May 2015.

10.1.2.2. Member of the conference program committees

- CEC'2015: IEEE Congress on Evolutionary Computation (Sendai, Japan, 2015)
- EA'2015: 12th International Conference on Artificial Evolution (Lyon, France 2015)

- EMO'2015: 8th International Conference on Evolutionary Multi-criterion Optimization (Guimarães, Portugal, 2015)
- EPIA'2015: 17th Portuguese Conference on Artificial Intelligence, Track on Artificial Life and Evolutionary Algorithms (Coimbra, Portugal, 2015)
- EvoCOP'2015: 15th European Conference on Evolutionary Computation in Combinatorial Optimisation (Copenhagen, Denmark, 2015)
- GECCO'2015: Genetic and Evolutionary Computation Conference, Evolutionary Combinatorial Optimization and Metaheuristics (ECOM) track (Madrid, Spain, 2015)
- LION'2015: 9th Learning and Intelligent OptimizatioN Conference (Lille, France, 2015)
- ICCS'2015 International Conference on Computational Science, Reykjavik, Iceland, June 1-3, 2015.
- IEEE IPDPS/NIDISC'2015 IEEE International Workshop on Nature Inspired Distributed Computing, Hyderabad, India, May 25-29, 2015.
- IEEE IPDPS/PCO'2015 IEEE Intl. Workshop on Parallel Computing and Optimization, Hyderabad, India, May 25-29, 2015.
- MIC'2015 Metaheuristics Intl. Conf., Agadir, Morocco, June 7-10, 2015.
- COSI'2015 Colloque sur l'Optimisation et les Systèmes d'information, Oran, Algérie, June 1-3, 2015.
- INCoS 2015 Intl. Conf. on Intelligent Networking and Collaborative Systems, Taipei, Taiwan, Sep. 2-4, 2015.
- CoCoNet'2015 Intl. Conf. on Computing and Network Communications, Trivandrum, India, Dec. 16-19, 2015.
- IC3'2015 Intl. Conf. on Contemporary Computing, Noida, India, Aug. 20-22, 2015.
- CloudTech'2015 Intl. Conf. of Cloud Computing Technologies and Applications, Marrakech, Morocco, June 2-4, 2015.
- Workshop on Foundations of Genetic Algorithms (FOGA 2015).

10.1.3. Journal

10.1.3.1. Member of the editorial boards

- E-G. Talbi : Editor of the Journal « Computers and Industrial Engineering (CAIE, Elsevier)» Area «Computational Intelligence».
- D. Brockhoff, B. Derbel, A. Liefooghe and S. Verel: Guest editors of a special issue on Evolutionary Multiobjective Optimization, European Journal of Operational Research.
- N. Melab Guest Editor for the special issue on Multi/Many-core Computing for Parallel Metaheuristics. In Concurrency and Computation: Practice and Experience, 2015.
- E-G. Talbi, P. Bouvry : Guest editor of a special issue on Computational intelligence for Cloud computing, IEEE Computational Intelligence Magazine, Vol.10, No.1, 2015.
- D. Brockhoff : Special Issue "Evolutionary Multiobjective Optimization" of Computers and Operations Research journal (C&OR), together with Joshua Knowles, Boris Naujoks, and Karthik Sindhya, submission deadline in September 2015
- L. Jourdan : Review Editor Frontiers in Big Data.

10.1.3.2. Reviewer - Reviewing activities

- A Quarterly Journal of Operations Research (4OR, Springer)
- European Journal of Operational Research (EJOR, Elsevier)
- Journal of Heuristics (HEUR, Springer)
- Soft Computing (SOCO, Springer)

- IEEE Transactions on Evolutionary Computation
- Applied Soft Computing
- International Transactions in Operational Research (ITOR)
- IEEE/ACM Transactions on Computational Biology and Bioinformatics
- Computers & Operations Research (COR, Elsevier)
- Computers & Industrial Engineering (CAIE, Elsevier)
- ACM Computing Surveys
- Computation and Concurrency: Practice and Experience
- Parallel Processing Letters
- Omega, The International Journal of Management Science

10.1.4. Invited talks

- L. Jourdan, Combinatorial optimization for Bioinformatcs, invited talk (1day), summer school of Bioinformatics, Angers, 2015.
- A. Liefooghe, "On multi-objective fitness landscapes and the performance of EMO algorithms", Dec 2015, Shinshu University, Nagano, Japan
- D. Brockhoff, invited tutorial "Evolutionary Multiobjective Optimization", GECCO 2015, Madrid, Spain, July 12, 2015, together with Tobias Wagner
- N. Melab, Invited lecture "Basics on parallel programming", HPC day organized in conjunction with COSI'2015, May 31^{th}, Oran, Algeria, 2015.
- E-G. Talbi, "Combining metaheuristics with mathematical programming, constraint programming and machine learning", Keynote speaker ROADEF'2015 Société Française de Recherche Opérationnelle, Marseille, France, Feb 2015.
- E-G. Talbi, "Solving complex optimization problems", Tutorial IIT'2015 11th Int. Conf. on Innovations in Information Technology, Dubai, UAE, Nov 2015.
- C. Dhaenens, L. Jourdan and M-E. Marmion, "Synergy of knowledge and optimization", KU Leuven KULAK, April 2015
- C. Dhaenens and M-E. Marmion, "Synergy of knowledge and optimization", Shinshu University, Nagano, Japan, Feb. 2015

10.1.5. Leadership within the scientific community

- L. Jourdan : Co-president of the working group "ATOM: Multi-objective optimization", GDR RO.
- N. Melab : scientific leader of Grid'5000 (https://www.grid5000.fr) at Lille, Since 2004
- N. Melab : Chargé de Mission of High Performance Computing and Simulation at Université Lille 1, Since 2010
- E-G. Talbi : Co-president of the working group "META: Metaheuristics - Theory and applications", GDR RO and GDR MACS.
- E-G. Talbi : Co-Chair of the IEEE Task force on Cloud Computing within the IEEE Computational Intelligence Society.
- L. Jourdan, A. Liefooghe : Secretary of the association "Artificial Evolution" (EA).

10.1.6. Scientific expertise

- C. Dhaenens: Jury of the contest "les pros de la RO", organised by the ROADEF society, Nov 2015.
- L. Jourdan: external reviewer for the Luxembourg National Research Fund (FNR).
- L. Jourdan: external reviewer for the FWO (Research Foundation Flanders).

- L. Jourdan : Jury of the contest "prix Robert Faure" for contribution in the field of Operational research organized by ROADEF Feb. 2015
- E-G. Talbi : Expert for Qatar Foundation QNRF projects, 2015.

10.1.7. Research administration

- C. Dhaenens : Vice-head of CRIStAL laboratory (Centre de Recherche en Informatique, Signal et Automatique de Lille), common to CNRS, University of Lille and Ecole Centrale de Lille, 430 people.
- F. Dufossé : Member of the Inria “center committee” and “research applications”.
- N. Melab : Member of the steering committee of “Maison de la Simulation” at Université Lille 1.
- L. Jourdan Membre du bureau de la direction des écoles doctorales en Informatique du Nord Pas de Calais.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Licence: A. Liefooghe, Algorithmic and Data structure, 36h ETD, L2, Université de Lille 1, France
- Licence: A. Liefooghe, Algorithmic for Operations Research, 36h ETD, L3, Université de Lille 1, France
- Master: A. Liefooghe, Databases, 30h ETD, M1, Université de Lille 1, France
- Master: A. Liefooghe, Advanced Object-oriented Programming, 53h ETD, M2, Université de Lille 1, France
- Master: A. Liefooghe, Combinatorial Optimization, 10h ETD, M2, Université de Lille 1, France
- Master: A. Liefooghe, Multi-criteria Decision Aid and Optimization, 25h ETD, M2, Université de Lille 1, France
- A. Liefooghe is supervising the Master 2 MIAGE IPI-NT
- B. Derbel is the co-supervising the Master 2 MOCAD (Complex Models, Algorithms, Data)
- Master : Bilel Derbel, Combinatorial Optimization, 35h, M2, University Lille 1, France
- Master : Bilel Derbel, Grid Computing, 16h, M2, University Lille 1, France
- Master : Bilel Derbel, Parallel and Distributed Programming, 35h, M1, University Lille 1, France
- Master : Bilel Derbel, Advanced Object Programming, 132h, M1, University Lille 1, France
- Master : Bilel Derbel, Algorithms and Applications, 28h, M1, University Lille 1, France
- Laetitia Jourdan: Master in Computer Sciences and Master MIAGE of University of Lille 1: Business Intelligence (30h), Datamining (60h), Datawarehouse (30h)
- Laetitia Jourdan : Informatique L1 University of Lille 1 48h
- Laetitia Jourdan: Responsible of sandwich courses in Master Lille 1
- Laetitia Jourdan : Responsible of Master MIAGE Formation en Alternance
- Laetitia Jourdan: Co-responsible of Licence 1 Computer Science
- Dimo Brockhoff: Introduction to Optimization, Ecole Centrale Paris, Supelec, ESSEC, MSc in Data Sciences & Business Analytics
- Dimo Brockhoff: Introduction to Optimization, Univ. Paris-Sud, MSc (together with Anne Auger (TAO team)), M2 Apprentissage, Information et Contenu
- Master lecture: N. Melab, Supercomputing, 33h, Master 2, Université Lille 1, France
- Master lecture: N. Melab, Operations Research, 82h, Master 1, Université Lille 1, France

- Master leading: N. Melab, Co-head (with C. Chainais) of the master 2 of advanced scientific computing, U. Lille 1
- Engineering school : Clarisse Dhaenens, Graphs and Combinatorics, 80 HeqTD, Polytech Lille, University Lille 1, France
- Engineering school : Clarisse Dhaenens, Operations Research, 70 HeqTD, Polytech Lille, University Lille 1, France
- Engineering school : Clarisse Dhaenens, Algorithmics and programming, 45 HeqTD, Polytech Lille, University Lille 1, France
- Engineering school : El-Ghazali Talbi, Advanced optimization, 36h, Polytech'Lille, University Lille 1, France
- Engineering school : El-Ghazali Talbi, Data mining, 36h, Polytech'Lille, University Lille 1, France
- Engineering school : El-Ghazali Talbi, Operations research, 60h, Polytech'Lille, University Lille 1, France
- Engineering school : El-Ghazali Talbi, Graphs, 25h, Polytech'Lille, University Lille 1, France
- Polytech Lille : Marie-Eléonore Marmion, Database (responsible), 60h, 1st year, Université Lille 1, France
- Polytech Lille : Marie-Eléonore Marmion, Algorithm and Programming, 44h, 1st year, Université Lille 1, France
- Polytech Lille : Marie-Eléonore Marmion, Graphs (responsible), 44h, 1st year, Université Lille 1, France
- Polytech Lille : Marie-Eléonore Marmion, Optimization, 14h, 2nd year, Université Lille 1, France
- Polytech Lille : Marie-Eléonore Marmion, Optimization,8h, 3rd year, Université Lille 1, France
- Polytech Lille : Marie-Eléonore Marmion, Data mining, 10h, 3rd year, Université Lille 1, France

10.2.2. Supervision

PhD defended : Sophie Jacquin, Combining exact method and metaheuristics for production problems, 11/2015, Co-direction : El-Ghazali Talbi et Laetitia Jourdan

Phd defended : Nicolas Dupin, Modélisation et résolution de grands problèmes stochastiques et combinatoires : Application à la gestion de production électrique, Oct 2015, El-Ghazali Talbi

Phd defended : Mathieu Gérard, Contribution à la résolution de problèmes d'optimisation en distribution, Dec 2015, Francois Clautiaux.

PhD defended: Rudi LEROY, Parallel Branch-and-Bound revisited for solving permutation combinatorial optimization problems on multi-core processors and coprocessors, Nouredine Melab and Mohand Mezmaz (UMONS, Belgium), Defended on 19/11/2015

PhD in progress: Maxence Vandromme, Datamining et optimisation combinatoire adaptés à la prévention et à l'orientation de patients, début : 1/06/2014, CIFRE with Alicante Co-direction : Clarisse Dhaenens and Laetitia Jourdan

PhD in progress: Gauvain Marquet, Mono-objective decomposiiton for multi-objective optimization, University Lille 1, Sep. 2014, Bilel Derbel and El-Ghazali Talbi

PhD in progress : Thanh-Do Tran, Benchmarking Continuous Multiobjective Optimization Algorithms, since 12/2011, Dimo Brockhoff and El-Ghazali Talbi

PhD in progress: Jan GMYS, Optimization and simulation of electrical networks using massively parallel heterogeneous computing, Nouredine Melab and Daniel Tuyttens (UMONS, Belgium), since October 2014

PhD in progress : Sylvain Dufourny, Optimisation de décisions économiques concurrentielles dans un simulateur de gestion d'entreprise, Novembre 2012, Clarisse Dhaenens

PhD in progress : A. Q. Nguyen, Green scheduling on cloud computing systems, 11/2012, El-Ghazali Talbi and Pascal Bouvry

PhD in progress : Oumayma Bahri, Fuzzy multi-objective optimization, 11/2013, El-Ghazali Talbi and Nayla Ben-Omar

PhD in progress : Asma Gannouni, Stochastic multi-objective optimization using metaheuristics , 11/2013, El-Ghazali Talbi and Rachid Ellaia

New PhD : Aymeric Blot, Réagir et s'adapter à son environnement : Concevoir des méthodes autonomes pour l'optimisation combinatoire à plusieurs objectifs , ENS Student co-directed Laetitia Jourdan and Marie-Eléonore Marmion

New PhD : AnneLise Bedenel, Classification supervisée et non supervisée en présence de descripteurs évoluant dans le temps. Application à la comparaison d'assurances en ligne, CIFRE with Pixeo co-directed Laetitai Jourdan and Christophe Biernacki (Modal Inria Team)

New PhD : Gautier Vaillant, Parallel combinatorial optimization for molecular sampling and docking on hybrid clusters, Nouredine Melab and Daniel Tuyttens (UMONS, Belgium), Started in 09/2015

10.2.3. Juries

- L. Jourdan: PhD thesis: Pierrick Buret, "Sécurité temporelle des hyperviseurs aérospatiaux", Université de Limoges, Dec 2015.
- L. Jourdan: Phd thesis: CHRAIBI Abdelahad,"A Decision Making System for Operating Theater Design: Application of Facility Layout Problem", Université Américaine de Beyrouth, Liban, Dec 2015.
- L. Jourdan : Optimization of the car relocation operations in one-way carsharing systems, de Rabih ZAKARIA de l'UTBM, December 14th 2015 (L. Jourdan, Rapporteur)
- N. Melab: HDR: Patricia Stolf, "Resource management for green infrastructures through reconfiguration", Université de Toulouse, November 13th, 2015.
- E-G. Talbi: PhD thesis: Charlie Vanaret "Hybridation d'algorithmes évolutionnaires et de méthodes d'intervalles pour l'optimisation de problèmes difficiles», Université de Toulouse, Jan 2015.
- E-G. Talbi: HDR : A. Sbihi "Contributions à la résolution de quelques problèmes d'optimisation combinatoire avec contraintes complexes: Etude et stratégie algorithmique", Université de Cergy-Pontoise, Jan 2015.
- E-G. Talbi: PhD : Simon Thevenin "Metaheuristics for constrained production scheduling problems", Université Genève, Switzerland, June 2015.
- E-G. Talbi: HDR : D. Duvivier "Contributions au couplage de l'optimisation et de la simulation", Université de Valenciennes, Sept 2015.
- E-G. Talbi: HDR : A. Nakib "From static to dynamic metaheuristics", Université de Paris Est, Dec 2015.

10.3. Popularization

- D. Brockhoff: Blackbox Optimization talk at 30min of Inria.
- L. Jourdan: Bioinspired computing - talk in undergraduate and graduate schools.
- L. Jourdan: Operational research - for 2nde during integration week (June 2015).
- L Jourdan, C. Dhaenens "Data et Santé", in "Data for you, data for business", organized by inria Lille (Nov 2015).
- L. Jourdan : Coding gouter for children (Dec. 2015).

GEOSTAT Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific events organisation

10.1.1.1. General chair, scientific chair

N. Brodu is the principal convener of the special session « Machine Learning adaptations for Earth monitoring » at European Geosciences Union General Assembly, the most important european congress in Earth Sciences.

10.1.1.2. Member of the conference program committees

H. Yahia was a member of the conference program committee Recent Advances in Electronics & Computer Engineering (RAECE), January 2015.

10.1.2. Journal

10.1.2.1. Member of the editorial boards

H. Yahia is a member of the editorial board of the open access journal *Frontiers in Fractal Physiology*.

10.1.3. Invited talks

- B. Xu has given an invited talk at the University of Basel, *Research Group : Computational Physiology and Biostatistics*. Title: **From the Complexity Analysis of Biosignals to Clinical Applications**.
- K. Daoudi has given 2 invited talks on *nonlinear speech processing* at the Czech Technical University of Prague and the Brno University (Czech Republic).
- H. Badri has given an oral presentation at the ORASIS conference [27].
- N. Brodu, H. Yahia: *Multiscale analysis with stochastic texture differences*. Recent Advances in Electronics & Computer Engineering (RAECE), January 2015.
- O. Pont has given a presentation at the SCAM seminar: *Microcanonical cascade processes: how singularity analysis characterizes cardiac arrhythmia*, on November 19th, 2015.

10.1.4. Scientific expertise

- H. Yahia is a member of CNU (Conseil National des Universités), section 61.
- H. Yahia has participated in the evaluation of an ANR project.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence : Hicham Badri, Unix Shell scripting & Python , 32 hours, L2 level , Bordeaux 1 University, France

Master : Khalid Daoudi, Financial mathematics, 20 hours lecture courses, M2 level, Lorraine University, France

3rd year ingineer school: Nicoals Brodu, 18 hours, M1 level (supervision of 4 engineer students), Institut d'Optique, Bordeaux, France

Doctorat :

10.2.2. Supervision

PhD : Hicham Badri, Sparse and Scale-Invariant Methods in Image Processing, Bordeaux 1 University, December 1st 2015, supervisors: H. Yahia and D. Aboutajdine, [14].

PhD : Ayoub Tamim, Segmentation et classification des images satellitaires : application à la détection des zones d'upwelling côtier marocain et mise en place d'un applicatif de suivi spatio-temporel, Rabat University, September 22 2015, supervisors: K.Daoudi, H. Yahia, D. Aboutajdine, HAL link.

PhD in progress : Camila Artana, Ocean dynamics at super-resolution Western Atlantic, defense scheduled in 2018, supervision: C. Provost and H. Yahia.

PhD in progress: Anass El Aouni, Temporal evolution of coastal upwelling, defense scheduled in 2018, supervision: K. Minaoui, H. Yahia and D. Aboutajdine.

PhD in progress: Akanksha Garg, super-resolution for Earth Observation, defense scheduled in 2017, co-supervision: N. Brodu and D. Singh (in the framework of the OPTIC associated team).

PhD in progress: Ghopal Singh, Novel methods in classification and machine learning for Earth Observation, co-supervision: N. Brodu and D. Singh (in the framework of the OPTIC associated team).

10.2.3. Juries

- H. Yahia is a member of the jury in the PhD defense of Mr. M. Osadebey, title *Noise Estimation, Noise Reduction and Intensity Inhomogeneity Correction in MRI Images of the Brain*, Concordia University, Electrical and Computer Engineering, June 15th, 2015.
- H. Yahia was asked by Bourgogne University to review HDR candidacy.

10.3. Popularization

Geostat has participated to the Inria initiative for thge preparation of the COP21 international conference: *Our common future under climate change*.

INOCS Team

7. Dissemination

7.1. Teaching - Supervision - Juries

7.1.1. Supervision

PhD in progress : Luciano Porretta, “Models and methods for the study of genetic associations”, May 2011, Bernard Fortz

PhD in progress : Sezin Afsar,"Revenue Optimization and Demand Response Models using bilevel programming in smart grid systems”,October 2011 , Luce Brotcorne

PhD in progress : Martim Moniz, “Traffic engineering in Ethernet networks”, November 2012, Bernard Fortz and Luis Gouveia

PhD in progress : Bayrem Tounsi,"Gestion de rśeaux de services porte à porte pour le transport de marchandies ”, October 2012 , Luce Brotcorne

PhD in progress : Carlos Casorran, “A Mathematical Optimization Approach for Stack- elberg Solutions of Bimatrix Games", July 2013, Martine Labbé

PhD in progress : Fabio Sciamannini, “Exact algorithms for variants of the coloring problem”, September 2014, Bernard Fortz, Martine Labbé and Isabella Lari

PhD in progress : Jérôme De Boeck, “Decomposition methods for combinatorial optimization problems", Octobre 2015, Bernard Fortz

PhD in progress : Léonard Von Niederhausern, "Approches bi-niveau pour la tarification de services énergéiques ”, Octobre 2015 , Luce Brotcorne

MISTIS Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific events organisation

10.1.1.1. Member of the organizing commitees

- **IEEE DSAA 2015, IEEE international conference on Data Science and Advanced Analytics**, http://dsaa2015.lip6.fr/, in Paris, Oct. 19-21, 2015. F. Forbes was member of the scientific committee and organized with W. Buntine a special session on "Trends and controversies". 150 participants. 81 accepted papers. Acceptance ratio 29%.
- Stéphane Girard was co-chair of the Astrostatistics summer school dedicated to "Classification & Clustering" held in Les Houches, http://stat4astro2015.sciencesconf.org/.
- **2nd conference of the SFRMBM society (Société Francaise de Résonance Magnétique en Biologie et Médecine)**, http://sfrmbm2015.sciencesconf.org/, March 18-20, 2015, Grenoble. F. Forbes was a member of the organizing committee. 200 participants. 140 submissions. Approximate funding: 80 keuros.
- Stéphane Girard was a member of the organizing committees of "4èmes rencontres R" http://r2015-grenoble.sciencesconf.org/ and of the 6th workshop Statlearn "Challenging problems in Statistical Learning", both held in Grenoble.
- **INRA AIGM network day** in Grenoble June 30, 2015. F. Forbes was program co-chair with N. Peyrard. 20 participants. Approximate funding: 1 keuros. AIGM events web site: https://carlit.toulouse.inra.fr/AIGM/events.html.

10.1.2. Scientific events selection

10.1.2.1. Member of the conference program commitees

- Stéphane Girard was a member of the conference program committee of the "Mathematical Finance and Actuarial Sciences conference organized by the AIMS (African Institute for Mathematical Sciences), Mbour, Sénégal.

10.1.2.2. Reviewer

In 2015, F. Forbes has been reviewer for NIPS 2015 and GRETSI 2015.

10.1.3. Journal

10.1.3.1. Member of the editorial boards

- Stéphane Girard is Associate Editor of the *Statistics and Computing* journal since 2012. He is also member of the Advisory Board of the *Dependence Modelling* journal since december 2014.
- F. Forbes is Associate Editor of the journal Frontiers in ICT: Computer Image Analysis since its creation in Sept. 2014. Computer Image Analysis is a new specialty section in the community-run openaccess journal Frontiers in ICT. This section is led by Specialty Chief Editors Drs Christian Barillot and Patrick Bouthemy.

10.1.3.2. Reviewer - Reviewing activities

In 2015, S. Girard has been a reviewer for *Scandinavian Journal of Statistics, Extremes* and *Journal of Statistical Software.*
In 2015, F. Forbes has been reviewer for *Statistics and Computing*, *Computational Statistics and Data Analysis* journals, IEEE trans. on Signal Processing, IEEE trans. on Image Processing journals.

10.1.4. Invited talks

Stéphane Girard was invited to give a talk at the SMAI Conference [32] and at the Extreme Value Analysis conference [33].
F. Forbes was invited to give a talk at the Working Group on Model-Based Clustering Summer Session, in Seattle, USA, July 19-25, 2015, http://mathsci.ucd.ie/~brendan/wgmbc2015.html. Title: High dimensional regression with Gaussian mixtures and partially latent response variables. 30 participants.
F. Forbes was invited to give a talk at the CHUV/SIEMENS workshop on Quantitative magnetic resonance imaging for neuroradiology, in Lausanne, Switzerland, June 29, 2015. Title: Automatic brain lesion segmentation: methodological challenges. 20 participants.
F. Forbes and S. Girard gave a tutorial at the Astrostatistics School in Les Houches in Oct. 2015, http://stat4astro2015.sciencesconf.org/.

10.1.5. Leadership within the scientific community

Stéphane Girard is at the head of the associate team (*Statistical Inference for the Management of Extreme Risks and Global Epidemiology*) created in 2015 between Mistis and LERSTAD (Université Gaston Berger, Saint-Louis, Sénégal). The team is part of the LIRIMA (Laboratoire International de Recherche en Informatique et Mathématiques Appliquées), http://mistis.inrialpes.fr/simerge/.

10.1.6. Scientific expertise

- Stéphane Girard was in charge of evaluating PEPS research projects (projets exploratoires premier soutien) for the CNRS and MITACS projects from Québec, Canada.
- F. Forbes is a member of the ERCIM working group on Mixture models.

10.1.7. Research administration

- Stéphane Girard is at the head of the Probability and Statistics department of the LJK (Laboratoire Jean Kuntzmann) since september 2012.
- Grenoble Pole Cognition. F. Forbes is representing Inria and LJK in the pole.
- PRIMES Labex, Lyon. F. Forbes is a member of the strategic committee. F. Forbes is representing Inria.
- F. Forbes was elected in 2010 and is since then a member of the bureau of the "Statistics and Images" group in the Société Française de Statistique (SFdS), http://www.sfds.asso.fr/318-Actualites_du_groupe_Statistique_et_Images. The group is made of 5 persons. F. Forbes is vice-president.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence : Alexis Arnaud, *Probability and statistics*, 56 ETD, L2 level, IUT2 Grenoble, Université Pierre Mendès France.

Master : Stéphane Girard, *Statistique Inférentielle Avancée*, 45 ETD, M1 level, Ensimag. Grenoble-INP, France.

Master: Jean-Baptiste Durand, *Statistics and probability*, 192 ETD, M1 and M2 levels, Ensimag Grenoble INP, France.

J.-B. Durand is a faculty member at Ensimag, Grenoble INP.

10.2.2. Supervision

PhD in progress: Aina Frau-Pascual, "*Statistical Models for the coupling of ASL and BOLD Magnetic Resonance modalities to study brain function and disease*", October 2013, Florence Forbes and Philippe Ciuciu.

PhD in progress: Alexis Arnaud "*Multiparametric MRI statistical analysis for the identification and follow-up of brain tumors* ", October 2014, Florence Forbes and Emmanuel Barbier.

PhD in progress: Pierre-Antoine Rodesch, "*Spectral tomography and tomographic reconstruction algorithms*", october 2015, Florence Forbes.

PhD in progress: Thibaud Rahier, "*Data-mining pour la fusion de données structurées et non-structurées*", november 2015, Florence Forbes and Stéphane Girard.

PhD in progress: Clément Albert, "*Limites de crédibilité d'extrapolation des lois de valeurs extrêmes*", october 2015, Stéphane Girard.

PhD in progress: Maïlys Lopes, "*Télédétection en écologie du paysage : statistiques en grande dimension pour la multirésolution spatiale et la haute résolution temporelle*", november 2014, Stéphane Girard and Mathieu Fauvel (INRA Toulouse).

PhD in progress: Alessandro Chiancone, "*Sequential dimension reduction*", november 2013, Stéphane Girard and Jocelyn Chanussot (Grenoble INP).

PhD in progress: Seydou Nourou Sylla, "*Modélisation statistique pour l'analyse des causes de décès décrites par autopsie verbale en milieu rural africain : cas du Sénégal*", october 2012, Stéphane Girard and Abdou Diongue (Université Gaston Berger, Sénégal).

PhD in progress: Brice Olivier, "*Joint analysis of eye-movements and EEGs using coupled hidden Markov and topic models*", october 2015, Jean-Baptiste Durand, Marianne Clausel and Anne Guérin-Dugué (Université Grenoble Alpes).

10.2.3. Juries

10.2.3.1. PhD

- F. Forbes has been reviewer for four PhD theses in 2015:

  - Theodosios Gkamas, University of Strasbourg, Sept. 29, 2015.

  - Brice Ozenne, University of Lyon 1, Sept, 2015.

  - Julien Stoehr, University Montpellier 2, Oct. 2015.

  - Hajer Braham, Telecom ParisTech and Orange, December 2015.

- F. Forbes was also president for the PhD commitee of Haithem Boussaid, "Efficient Inference and learning in Graphical models for multi-organ shape segmentation", Ecole Centrale Paris, January 8, 2015.

- Stéphane Girard has been rewiewer of two PhD theses:

  - "*Modélisation de la dépendance et estimation du risque agrégé*", by Andrés Cuberos, Univ. Claude Bernard - Lyon and

  - "*Analyse de données de cytométrie de flux pour un grand nombre d'échantillons*" by Xiaoyi Chen, Univ. Cergy-Pontoise.

- S. Girard was also a member of the PhD committee of Jonathan Jalbert "*Développement d'un modèle statistique non stationnaire et régional pour les précipitations extrêmes simulées par un modèle numérique de climat*", Univ. Laval (Québec, Canada).

10.2.3.2. HDR

F. Forbes was also a member of the HDR commitee of Estelle Kuhn, University Paris Orsay, November 2015.

10.2.3.3. Other commitees

- F. Forbes is a member of the Committee for technological project and engineer candidate selection at Inria Grenoble Rhône-Alpes ("Commission du développement technologique ").
- F. Forbes was a member of the committee for Inria research scientist candidate (CR) selection at Inria Rennes in 2015.
- F. Forbes was a member of the committee for attributing the bi-annual Jean Kuntzman award.
- Stéphane Girard is a member of the "Comité des Emplois Scientifiques" and “Comité de Centre” at Inria Grenoble Rhône-Alpes since 2015.
- Since 2015, Stéphane Girard is a member of the INRA committee (CSS MBIA) in charge of evaluating INRA researchers once a year in the MBIA dept of INRA.

10.3. Popularization

Pixyl communication. F. Forbes gave several large audience presentations related to the Pixyl startup and more recently interviews for journals such as Presence and INSERM Science et Santé Magazines.

MODAL Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific events organisation

10.1.1.1. General chair, scientific chair

Christophe Biernacki was the General chair of the “47èmes Journées de Statistique de la SFdS” in Lille (JdS 2015, http://jds2015.sfds.asso.fr/). It holds during one week from June 1st to 5th 2015 with about 200 talks and about 400 registrations. It is the main annual French statistical conference, with international audience.

Christophe Biernacki co-organised a one-day meeting “Big-Data : Une vision globale Gestion, Analyse, Ethique et Logiciels” in Paris on March 13 2015 (http://www.sfds.asso.fr/393-Big-Data). It brought together about 80 registered people.

Sophie Dabo participates to the organisation of the Ecole Mathématique Africaine, 30/11-5/12 2015, Institut Polytechnique de Yamoussoukro, Côte d’ivoire

Benjamin Guedj is a founder and co-organizer of the YSP seminar (Young Statisticians and Probabilists), from the SFdS (Société Française de Statistique).

Benjamin Guedj is the organizer of the Modal team weekly seminar.

Benjamin Guedj is the co-organizer of the "Ateliers de la Statistique" from the SFdS.

10.1.1.2. Member of the organizing committees

Christophe Biernacki co-organized a one-day meeting “Statistique et données massives : enjeux et perspectives” in Paris on October 13th 2015 (http://bigdata2015.sfds.asso.fr/comite-dorganisation/).

Sophie Dabo co-organisate session "Asymptotic properties in nonparametric problems (EO116)" in "The 8th International Conference of the ERCIM WG on Computational and Methodological Statistics" (CMStatistics 2015)

Sophie Dabo co-organisate of "Forum of Young Mathematicians", Lille, 27-29, November, 2015

Guillemette Marot is a member of the organizing committee of seminars from Bililleplatform. More information about all seminars is available on https://wikis.univ-lille1.fr/bililleanimation.

Benjamin Guedj has been a member of the steering committee of the 47th Journées de Statistique (JdS 2015, Lille, June 2015) from the SFdS.

10.1.2. Scientific events selection

10.1.2.1. Member of the conference program committees

Christophe Biernacki was in the conference program committee of the “Sixièmes rencontres des jeunes statisticiens” in parc ornithologique du Teich (near Bordeaux) on August 28th to September 2nd (http://rencontres-jeunes-statisticiens.sfds.asso.fr/).

Julien Jacques is member of the program committees of StatLearn’15 (Grenoble, april 2015) and StatLearn’16 (Vannes, april 2016).

Benjamin Guedj has been a member of the program committee of CaP’2015 (Conférence Francophone sur l’Apprentissage automatique, Lille, July 2015).

Alain Celisse was a member of the Journées de Statistique de la SFdS program committe.

10.1.3. Journal

10.1.3.1. Member of the editorial boards

Christophe Biernacki is an Associate Editor of the North-Western European Journal of Mathematics (NWEJM).

Sophie Dabo is an Associate editor of *Revista Colombiana de Estadistica*

Benjamin Guedj has been a reviewer for the conference CaP'2015 (Conférence Francophone sur l'Apprentissage automatique, Lille, July 2015).

Cristian Preda is an Associate Editor for the Journal Methodology and Computing in Applied Probability (http://www.springer.com/statistics/journal/11009) and Romanian Journal of Mathematics and Computer Science (www.rjm-cs.ro/).

10.1.3.2. Reviewer - Reviewing activities

Christophe Biernacki has acted as a reviewer for the a dozen journal papers: *Journal de la Société française de Statistique (JSFdS)*, *Journal of Classification (JoC)*, *Computational Statistics and Data Analysis (CSDA)*, *Journal of Statistical and Planning Inference (JSPI)*, *Advances in Data Analysis and Classification (ADAC)*, *Communication in Statistics – Theory and Methods*, *Data Mining and Knowledge Discovery (DAMI)*, *Journal of Statistical Software (JSS)*, *Statistica Sinica*, *Electronical Journal of Statistics (EJS)*, *Canadian Journal of Statistics (CJS)*.

Sophie Dabo is reviewer of *Statistical Inference for Stochastic Processes*, *Computational Statistics and Data Analysis*, *Statistics*, *Journal Afrika Statistika*, *Journal of Multivariate Analysis*, *Journal of Nonparametric statistics*, *Annales de l'ISUP*, *Electronic journal of statistics*, *Metika, Annals of Statistics*

Julien Jacques has referee in 2015 papers for CSDA and Statistical Papier.

Benjamin Guedj is a reviewer for the following journals: *Journal of the Royal Statistical Society (Series A)*, *Journal of the American Statistical Association*, *Molecular Ecology Resources*, *Journal of Multivariate Analysis*, *BMC Medical Research Methodology*, *Neurocomputing*.

Alain Celisse is a reviewer for the folloowing journals: *Annals of Statistics*, *JMLR*, *Bernoulli*, *JMVA*,...,

Guillemette Marot has reviewed in 2015 papers for BMC Bioinformatics and the Journal of Bioinformatics Research Studies.

10.1.4. Invited talks

Christophe Biernacki has been invited to give a talk at the following meetings:

- a tutorial "Model-based clustering/imputation with missing/binned/mixed data using the new software MixtComp" at the MissData conference in Rennes on June 18-19 2015 (http://missdata2015.agrocampus-ouest.fr/infoglueDeliverLive/).
- two lectures, named "Part I: CorReg Linear regression with correlated and numerous data" and "Part II: MixtComp Supervised classification with mixed data, missing data and uncertain data", at the National Institute for Public Health (RIVM) in Utrecht (The Netherlands) on April 8-9 2015.
- a lecture "Clustering: evolution of methods to meet new challenges" to the one-day clustering meeting of Orange Labs, Issy Les Moulineaux on October 20th 2015 (http://www.vincentlemaire-labs.fr/Clustering2015/).
- a research talk at CMStatistics 2015 (ERCIM 2015) in London (UK) on December 12-14 2015 [25].

Sophie Dabo give an invited talk at *Tunisian Association of Statistics and Applications Conference*, march 2015 and an invited talk at the *African Women in Mathematics Association Conference*, july 2015, Kenya.

Julien Jacques has given an invited talks at CMStatistics 2015 (London, UK, december 2015), ISI2015 (Rio de Janeiro, Brasil, July 2015). He has been also invited at Università degli Studi di Napoli Federico II to give a talk on a workshop on Ordinal Data Modelling.

Alain Celisse has given invited talks at

- Nice: Calibration project meeting
- Rennes: talk at the seminar
- LSTA/UMPC: talk at the seminar
- IHP: talk at the séminaire parisien de statistique

Vincent Vandewalle has given invited talks at

- Classification society meeting, June 2015, Mc Master University, Hamilton, Canada [31]
- 8th International Conference of the ERCIM WG on Computational and Methodological Statistics, December 2015, Senate House, London, United Kingdown [33]

10.1.5. Scientific expertise

Christophe Biernacki is an elected member to the “Conseil National des Universités” (CNU) since October 2015.

Sophie Dabo, Expertise of l’Oreal’s Award "Womens in Science" since 2014.

Julien Jacques is referee for ANRT PhD grant.

10.1.6. Research administration

Christophe Biernacki is “Délégué Scientifique Adjoint" of the Inria Lille center since August 2014.

Julien Jacques is responsible of the Data Mining & Decision team of ERIC laboratory (Université de Lyon).

Vincent Vandewalle, with Chloé Friguet (Laboratoire de Mathématiques de Bretagne Atlantique) and Frédérique Letué (Laboratoire Jean Kuntzmann): organisation of a roundtable during the "47èmes Journées de Statistique de la SFdS" about how to teach the big data [51].

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Christophe Biernacki is head of the M2 “Ingénierie Statistique et Numérique” http://mathematiques.univ-lille1.fr/Formation/ at University Lille 1.
Julien Jacques is the coordinator of the European Master on Data Mining and Knowledge Management (Université de Lyon).
Vincent Vandewalle was head of the DUT STID at IUT of University Lille 2 until June 2015.

Master: Christophe Biernacki, mathematical statistics, 60h, M1, Lille 1, France

Master: Christophe Biernacki, coaching project, 10h, M1, Lille 1, France

Master: Christophe Biernacki, data analysis, 97.5h, M2, Lille 1, France

Master: Christophe Biernacki, analysis of variance and experimental design, 22.5h, M2, Lille 1, France

Master: Christophe Biernacki, coaching internship, 20h, M2, Lille 1, France

Master: Sophie Dabo, "Spatial Statistics" 24h, M2, Lille 3, France

Master: Sophie Dabo, "Advanced Statistics" 24h, M2, Lille 3, France

Master: Sophie Dabo, "Non-prametric Statistics" 25h, M2, UGB, Senegal

Licence: Sophie Dabo, "Probability" , 24h, L2, Lille 3, France

Licence: Quentin Grimonprez, TP Probabilités, 12h, L3, Polytech’Lille, France

Master: Quentin Grimonprez, TP Classification Supervisée, 32h, M1, Polytech’Lille, France

Master: Quentin Grimonprez, TP Séries Temporelles, 14h, M2, Polytech’Lille, France

Licence: G. Marot, Biostatistics, 9h, L1, U. Lille 2, France

Master: G. Marot, Biostatistics, 45h, M1, U. Lille 2, France

Doctorat: G. Marot, Data Analysis with R, 24.5h, U. Lille 2, France

Master: B. Guedj, Statistical Learning, 10h, ENSAE ParisTech, Paris, France. 20 students.

Master: B. Guedj, Statistical Learning, 10h, Université de Lille, master de mathématiques, M2, parcours mathématiques et finance. 8 students.

Licence: S. Iovleff, Analysis and numerical methods, 28h, L1, U. Lille 1, France.

Licence: S. Iovleff, Linear Algebra, 74h, L1, U. Lille 1, France

Licence: S. Iovleff, Operational research, 28h, L2, U. Lille 1,France

Licence: S. Iovleff, Probability and Statistics, 32h, L3, U. Lille 1, France.

Master: S. Iovleff, Monte Carlo method, 30h, M1, U. Lille 1, France

Master: Maxime Brunin, TP du module "Modèle linéaire", 12h, M1, Polytech Lille, FRANCE.

Licence: V. Vandewalle, Probability, 142h, L2, U. Lille 2, France

Licence: V. Vandewalle, Classification, 32h, L2, U. Lille 2, France

Licence: V. Vandewalle, Case study and survey, 52h, L2, U. Lille 2, France

Licence: V. Vandewalle, Analysis, 28h, L2, U. Lille 2, France

Master: V. Vandewalle, Classification 34h, M1, U. Lille 1, France

Licence: Alain Celisse, Proba-Stat, 64h, niveau L2, université Lille, France

Licence: Alain Celisse, Analyse numérique, 32h, niveau L1, université Lille, France

Formation continue: Alain Celisse, Analyse numérique, 24h, niveau L1, université Lille, France

Licence: Alain Celisse, Algèbre, 68h, niveau L2, université Lille, France

Master: Alain Celisse, mémoire de Proba-Stat, 10h, niveau M2, université Lille, France

Licence: Cristian Preda, Probability, 40h, L1, Polytech'Lille, France

Licence: Cristian Preda, Inferential Statistics, 50h, L1, Polytech'Lille, France

Licence: Cristian Preda, Data Analysis, 40h, M1, Polytech'Lille, France

Licence: Cristian Preda, Biostatistics, 12h, M2, Polytech'LIlle, France

Licence: Cristian Preda, Functional data analysis, 12h, M2, Lille 1, France

10.2.2. Supervision

PhD: Clément Thery, Model-based covariable decorrelation in linear regression (CorReg). Application to missing data and to steel industry, University Lille 1, defended on July 8th 2015, Christophe Biernacki.

PhD: Stéphane Bouka, Modélisation non-paramétrique pour des observations spatialement dépendantes, Lille 3 et USTM Dabon, 21/12/2015, Sophie Dabo, Guy-martial Nkiet

PhD in progress: Aladji Bassene (2011-), co-tutelle between Lille 3 (Sophie Dabo) and UGB (Sénégal) (defense, April 2016)

PhD in progress: Emad Drwesh (2012-)(defense, december 2016), Lille 3, Sophie Dabo, Jérôme Foncel

PhD in progress: Mohamed Yayaha (2012-) (defense, december 2016), Lille 3, Sophie Dabo and Aboubacar Amiri

PhD in progress: Mohamed Ould Yehdhih (2014-) (defense, december 2017), Lille 3, Sophie Dabo and Mohamed Attouch

PhD in progress: Komi Nagbe, Prévision de production et de consommation d'énergie renouvelable, septembre 2015, Julien Jacques

PhD in progress: Yosra Ben Slimen, Extraction de connaissances dans de gros volumes de données hétérogènes (Big Data) pour la gestion automatique des réseaux radio, juin 2015, Julien Jacques
PhD in progress : Florence Loingeville, Mise en place d'outils statistiques spécifiques au contrôle de procédé en analyse microbiologique, décembre 2012, Julien Jacques and Cristian Preda
PhD in progress : Le Li, "PAC-Bayesian Online Clustering: theory and algorithms", 01/11/2014, together with Sébastien Loustau (Université d'Angers).
PhD in progess: Jérémie Kellner, Processus gaussien dans les RKHS et test d'adéquation, Université de Lille, Alain Celisse and Christophe Biernacki
PhD in progress: Quentin Grimonprez, Sélection de variable en très grande dimension par prise en compte de la dépendance, Alain Celisse, Guillemette Marot and Julien Jacques
PhD in progress: Maxime Brunin, Compromis temps de calcul-précision statistique, Alain Celisse and Christophe Biernacki
PhD in progress: Anne-Lise Bedenel, supervised and unsupervised classification with descriptors evolving in time. Application to online comparisons of insurances, Université Lille 1, Christophe Biernacki and Lætitia Jourdan

10.2.3. Juries

- PhD: Sophie Dabo has been examinator for Hassan Maatouk, Ecole of Mines of St-Etienne, 1/10/2015
- PhD: Sophie Dabo has been examinator for Sobom Matthieu Somé, University Franche-Comté, November 16, 2015.
- PhD: Sophie Dabo has been examinator for Abdoulaye Faye, Université Blaise Pascal, Clermont-Ferrand, december, 8, 2015.
- PhD: Sophie Dabo has been examinator for Zahraa Salloum, University of Lyon 2, 19/1/2016
- PhD: Julien Jacques has been referee for the PhD thesis of Amaury Labenne (Université de Bordeaux) and Henri Wallard (CNAM Paris)
- Christophe Biernacki participated as a reviewer to 5 PhD theses and 1 HdR, and as an examinator to 1 PhD thesis and 1 HdR.
- Critian Preda has been for the PḧD thesis of Alin Rusu (Facultatea de Matematica, Universitatea Bucuresti, June 2015).
  Guillemette Marot was a member of an INSERM competition jury (IE number 13 BAP A)

10.3. Popularization

- **Research Sensibilisation**
  - Christophe Biernacki has given a talk "Big Stat / MixtComp: A SaaS platform for easy Big Data analysis" to the one-day meeting Data For You at EuraTechnologie in Lille on November 26th 2015 (http://www.euratechnologies.com/actualites/2015/10/data-you-10381).
  - Sophie Dabo has participated to research valorisation days for high school students female.
  - Benjamin Guedj has participated in a meeting with undergraduate students at Université de Lille to promote research positions in mathematics (January 2015).
  - Benjamin Guedj has been a speaker for the "30 minutes de science" seminar (Inria Lille - Nord Europe, April 2015).
  - Vincent Vandewalle has given a talk "Clustering et modèles prédictif" to the third R&D du Plateau at EuraTechnologie in Lille on April 22th 2015 http://www.euratechnologies.com/actualites/2015/04/3eme-r-dv-plateau-10038
- **XPérium Lille 1**

  Participants: Christophe Biernacki, Maxime Brunin, Quentin Grimonprez, Vincent Kubicki, Vincent Vandewalle
  Vulgarization of MODAL's research to sensitize students and businesses: https://modal.lille.inria.fr/xperium/

REALOPT Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific events organisation

10.1.1.1. General chair, scientific chair

- François Clautiaux has organized an optimization challenge with multinational automobile manufacturer Renault (prizes of 30.000 euros).
- François Vanderbeck has been chosen by MOS as the general chair of the next triennal Symposium on Mathematical Optimization (ISMP-2018)

10.1.2. Scientific events selection

10.1.2.1. Member of the conference program committees

The team members are members of the following program committees:

- Olivier Beaumont: IPDPS'15: IEEE International Parallel & Distributed Processing Symposium.
- Olivier Beaumont: ISCIS'15, 30th International Symposium on Computer and Information Sciences.
- Olivier Beaumont: SC'15: IEEE ACM International Conference for High Performance Computing, Networking, Storage and Analysis.
- Olivier Beaumont: HCW'15 24th International Heterogeneity in Computing Workshop.
- Olivier Beaumont: HeteroPar'2015: Thirteenth International Workshop on Algorithms, Models and Tools for Parallel Computing on Heterogeneous Platforms.
- Olivier Beaumont and Lionel Eyraud-Dubois: HIPC'15: IEEE International Conference on High Performance Computing.
- François Clautiaux: Roadef 2015: French Operational Research Society Conference.
- Arnaud Pêcher: JGA 2015: Journées Graphes et Algorithmes 2015.
- Pierre Pesneau: INOC 2015: 7th International Network Optimization Conference.

10.1.3. Journal

10.1.3.1. Member of the editorial boards

- Olivier Beaumont is editor for IEEE Transactions on Parallel and Distributed Systems (TPDS)
- François Vanderbeck is Associate Editor for the EURO Journal on Computational Optimization

10.1.3.2. Reviewer - Reviewing activities

The team members are regular referees for the best journals of the field.

10.1.4. Invited talks

Arnaud Pêcher: "On dense sphere packings", International Conference on Graph Theory and its Applications, Coimbatore, India, 2015

10.1.5. Research administration

- Olivier Beaumont is the scientific deputy of Inria Bordeaux Sud-Ouest.
- François Vanderbeck is taking care of the team OptimAl ("Optimisation Mathématique Modèle Aléatoire et Statistique") at the Mathematics Institute of Bordeaux.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence : A. Pêcher, Programmation Impérative, 10h, DUT, Université de Bordeaux, France

Licence : A. Pêcher, Conception Objet, 42h, DUT, Université de Bordeaux, France

Licence : A. Pêcher, Programmation objet en Java, 44h, DUT, Université de Bordeaux, France

Licence : A. Pêcher, Algorithmique Avancée, 32h, DUT, Université de Bordeaux, France

Licence : A. Pêcher, Assembleur, 24h, DUT, Université de Bordeaux, France

Licence : A. Pêcher, Programmation Mobile, 24h, DUT, Université de Bordeaux, France

Licence : P. Pesneau, Système et Programmation en Fortran 90, 59h, L2, Université de Bordeaux, France

Licence : P. Pesneau, Modèles et Méthodes d'Optimisation, 30h, L2, Université de Bordeaux, France

Licence : P. Pesneau, Recherche Opérationnelle, 24h, DUT, Université de Bordeaux, France

Master : O. Beaumont, Big Data, 4h, M1, Institut National Polytechnique de Bordeaux, France

Master : O. Beaumont, Optimisation en Cloud Computing et Big Data, 15h, M2, Université de Bordeaux, France

Master : O. Beaumont, Distributed Computing, 4h, M2, Institut National Polytechnique de Bordeaux, France

Master : F. Clautiaux, Programmation Linéaire 1, 15h, M1, Université de Bordeaux, France

Master : F. Clautiaux, Introduction à la Programmation en Variables Entières, 15h, M1, Université de Bordeaux, France

Master : F. Clautiaux, Gestion des Opérations et Planification de la Production, 30h, M2, Université de Bordeaux, France

Master : F. Clautiaux, Problèmes combinatoires et routage, 30h, M1, Université de Bordeaux et Institut National Polytechnique de Bordeaux, France

Master : B. Detienne, Programmation Linéaire 1, 14h, M1, Université de Bordeaux, France

Master : B. Detienne, Optimisation Convexe Non Linéaire, 29h, M1, Université de Bordeaux, France

Master : B. Detienne, Recherche Opérationnelle, 16h, M1, Institut National Polytechnique de Bordeaux, France

Master : B. Detienne, Introduction à la Programmation en Variables Entières, 14h, M1, Université de Bordeaux, France

Master : B. Detienne, Gestion des Opérations et Planification de la Production, 28h, M2, Université de Bordeaux, France

Master : B. Detienne, Optimisation Stochastique, 58h, M2, Université de Bordeaux, France

Master : L. Eyraud-Dubois, Introduction à la Programmation par Contraintes, 30h, M2, Université de Bordeaux, France

Master : L. Eyraud-Dubois, Optimisation en Cloud Computing et Big Data, 15h, M2, Université de Bordeaux, France

Master : J. Guillot, Modèles de flot, 14h, M1, Université de Bordeaux, France

Master : P. Pesneau, Problèmes combinatoires et routage, 8h, M1, Université de Bordeaux, France

Master : P. Pesneau, Programmation Linéaire 1, 10h, M1, Université de Bordeaux, France

Master : P. Pesneau, Algorithmique et Programmation Objet, 60h, M1, Université de Bordeaux, France

Master : P. Pesneau, Modèles de flot, 15h, M1, Université de Bordeaux, France

Master : P. Pesneau, Programmation Linéaire 2, 14h, M1, Université de Bordeaux, France

Master : R. Sadykov, Modélisation, Optimisation, Complexité et Algorithmes, 50h, M2, CNAM Aquitaine, Bordeaux, France

Master : I. Tahiri, Outils et Logiciels pour l'Optimisation, 30h, M1, Université de Bordeaux, France

Master : F. Vanderbeck, Recherche Opérationnelle, 15h, M1, Institut National Polytechnique de Bordeaux, France

Master : F. Vanderbeck, Programmation Entière, 58h, M2, Université de Bordeaux, France

10.2.2. Supervision

PhD : Matthieu Gérard, Heuristiques basées sur la génération de colonnes pour un proble`me de planification du personnel, University of Lille, December 9th 2015, François Clautiaux (dir) and Manuel Davy (dir) and Ruslan Sadykov (co-dir).

PhD : Hugo Kramer, Software clustering problems, Universtate Federal de Flumense. Eduardo Uchoa (dir) and Francois Vanderbeck (co-dir).

PhD in progress : Jérémy Guillot, Optimisation de problèmes de partionnement, September 2014, François Clautiaux (dir) and Pierre Pesneau (dir).

PhD in progress : Quentin Viaud, Méthodes de programmation mathématiques pour des problèmes complexes de découpe, January 2015, François Clautiaux (dir), Ruslan Sadykov (dir), and François Vanderbeck (co-dir)).

PhD in progress : Martin Bué, Gestion du revenu dans le cadre du voyage professionnel, September 2012, François Clautiaux (dir), Luce Brotcorne (dir).

PhD in progress : Rodolphe Griset, Robust planning in Electricity production, November 2015, Boris Detienne (dir) and François Vanderbeck (dir).

PhD in progress : Imen Ben Mohamed, Location routing problems, October 2015, Walid Klibi (dir) and François Vanderbeck (dir).

PhD in progress : Thomas Bellitto, Infinite graphs, September 2015, Arnaud Pêcher (dir) and Christine Bachoc (dir).

PhD in progress : Philippe Moustrou, Codes, September 2014, Arnaud Pêcher (dir) and Christine Bachoc (dir).

10.2.3. Juries

- Olivier Beaumont: Evaluation (rapporteur) of the habilitation thesis (HDR) of Georges Da Costa (IRIT Toulouse).
- Olivier Beaumont: Evaluation (rapporteur) of the PhD thesis of Nathalie Herr (University of Besançon).
- François Clautiaux: Evaluation (directeur) of the PhD thesis of Matthieu Gérard (University of Lille).

- Ruslan Sadykov: Evaluation (encadrant) of the PhD thesis of Matthieu Gérard (University of Lille).
- Ruslan Sadykov: Evaluation (examinateur) of the PhD thesis of Hugo Kramer (University Federal Fluminense, Niteroi, Brazil).
- Ruslan Sadykov: Pre-evaluation of the PhD thesis of André Soares Velasco (University Federal Fluminense, Niteroi, Brazil).
- Ruslan Sadykov: Evaluation (examinateur) of the Master thesis of Daniel Dias de Olieira Neto (University Federal Fluminense, Niteroi, Brazil).

10.3. Popularization

François Clautiaux is a member of the board of AMIES, the French Agency for Interaction in Mathematics with Business and Society. AMIES is a national organization that aims to develop relations between academic research teams in mathematics and business, especially SMEs.

SELECT Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. General chair, scientific chair

Jean-Michel Poggi:

- Organization of the session: Wavelet Methods in Statistics, at the 8th International Conference of the ERCIM WG on Computational and Methodological Statistics, London, 12-14 December 2015.
- Organization of two sessions on MOOCs, ENBIS 2015, 6-10 Sept 2015, Prague. 1) Presentation session on MOOCs, 2) Realization of MOOCs – technology, content and funding opportunities.
- Organisation of the conference: "MOOC et formation continue en statistique", 3 mars 2015, IHP, Paris.

9.1.1.2. Member of the organizing committees

Gilles Celeux is one of the co-organizers of the international working group on model-based clustering. This year this workshop took place in Seattle (USA).

9.1.2. Journal

9.1.2.1. Member of the editorial boards

Gilles Celeux is Editor-in-Chief of the *Journal de la SFdS*. He is Associate Editor of *Statistics and Computing*, *CSBIGS*.

Pascal Massart is Associate Editor of *Annals of Statistics*, *Confluentes Mathematici*, and *Foundations and Trends in Machine Learning*.

Jean-Michel Poggi is Associate Editor of *Journal of Statistical Software*, *Journal de la SFdS* and *CSBIGS*. He is also editor (with A. Antoniadis, X. Brossat) of a Lecture Notes in Statistics: Modeling and Stochastic Learning for Forecasting in High Dimension, Springer 2015.

9.1.2.2. Reviewer - Reviewing activities

The members of the team have reviewed numerous papers for numerous international journals.

9.1.3. Invited talks

The members of the team have given many invited talks on their research in the course of 2015.

9.1.4. Leadership within the scientific community

Jean-Michel Poggi is:

- Vice-President ENBIS (European Network for Business and Industrial Statistics), 2015-18
- Vice-President FENStatS (Federation of European National Statistical Societies) since 2012
- Council Member of the ISI (2015-19)
- Member of the Board of Directors of the ERS of IASC (since 2014)

9.1.5. Scientific expertise

Jean-Michel Poggi is member of the EMS Committee for Applied Mathematics (since 2014).

9.1.6. Research administration

Jean-Michel Poggi is the president of ECAS (European Courses in Advanced Statistics) since 2015

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

SELECT members teach various courses at several different universities, and in particular the Master 2 "Modélisation stochastique et statistique" of University Paris-Sud.

9.2.2. Supervision

PhD: Jana Kalawoun, Modélisation statistique de l'état de charge des batteries électriques, Université Paris-Sud, November 2015, Gilles Celeux and Patrick Pamphile

PhD: Mélina Gallopin, Classification et inférence de réseaux pour les données RNA-seq, Université Paris-Sud, December 2015, Gilles Celeux with Andrea Rau and Florence Jaffrezic (INRA)

PhD: Émilie Devivjer, Modèles de mélange pour la régression en grande dimension, application aux données fonctionnelles, Université Paris-Sud, July 2015, Pascal Massart and Jean-Michel Poggi

PhD: Solenne Thivin, Détection automatique d'anomalies sur fonds complexes pour des images ou séquences d'images, Université Paris-Sud, December 2015, Erwan Le Pennec

PhD: Vincent Thouvenot, Estimation et sélection pour les modèles additifs et application à la prévision de la consommation électrique, December 2015, Jean-Michel Poggi and Anestis Antoniadis (Univ. Joseph Fourier, Grenoble)

PhD in progress: Valérie Robert, 2013, Gilles Celeux and Christine Keribin

PhD in progress: Yann Vasseur, 2013, Gilles Celeux and Marie-Laure Martin-Magniette (URGV)

PhD in progress: Neska El Haouij, 2014, Jean-Michel Poggi and Meriem Jaïdane, Raja Ghozi (ENIT Tunisie) and Sylvie Sevestre-Ghalila (CEA LinkLab), Thesis ENITUPS

PhD in progress: Florence Ducros, 2015, Gilles Celeux and Patrick Pamphile

PhD in progress: Claire Brecheteau, 2015, Pascal Massart

PhD in progress: Jeanne Nguyen, 2015, Claire Lacour

9.3. Popularization

Emilie Devijver:

- Organisation of a spring school for high school students about probability, Pristina, Kosovo
- Organisation of the "Séminaire de Vulgarisation des Doctorants" at Université Paris Sud
- Several talks in high schools to give tools to students to understand conferences: "Un texte, un mathématicien" organized at BNF.

SEQUEL Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific events organisation

10.1.1.1. Member of the organizing committees

Participation to the organization of the 32nd International Conference on Machine Learning:

- Philippe Preux, local chair organization of ICML
- Jérémie Mary, conference webmaster
- Romaric Gaudel, local volunteer chair

Co-organization of ICML workshops:

- 12th European Workshop on Reinforcement Learning (EWRL)
- 4th Workshop on Machine Learning for Interactive Systems
- Jeremie Mary was Co-organizer of the workshop "Offline and Online Evaluation of Web-based Services" at WWW'15 with Lihong Li (MSR) as main organizer.

10.1.2. Scientific events selection

10.1.2.1. Member of the conference program committees

- International Joint Conference on Artificial Intelligence (IJCAI 2015)
- International Conference on Pattern Recognition Applications and Methods (ICPRAM 2015)
- Approximate Dynamic Programing and Reinforcement Learning (ADPRL 2015)
- International Conference on Machine Learning (ICML 2015)
- Annual Conference on Neural Information Processing Systems (NIPS 2015)

French-speaking conferences:

- French Conference on Planning, Decision-making, and Learning in Control Systems (JFPDA 2015)
- Extraction et Gestion des Connaissances (EGC 2015)
- XXIIè rencontres de la société francophone de classification

10.1.2.2. Reviewer

- International Conference on Pattern Recognition Applications and Methods (ICPRAM 2015)
- Algorithmic Learning Theory (ALT 2015)
- AAAI Conference on Artificial Intelligence (AAAI 2015)
- Conference on Learning Theory (COLT 2015)
- European Workshop on Reinforcement Learning (EWRL 2015)
- Annual Conference on Neural Information Processing Systems (NIPS 2015)
- International Conference on Artificial Intelligence and Statistics (AISTATS 2015)
- European Conference on Machine Learning (ECML 2015)
- International Conference on Machine Learning (ICML 2015)
- International Joint Conferences on Artificial Intelligence (IJCAI 2015)
- Reinforcement Learning and Decision Making (RLDM 2015)
- International Conference on Uncertainty in Artificial Intelligence (UAI 2015)
- International Conference on Autonmous Agents and Multiagent Systems (AAMAS 2015)
- International Conference on Acoustics, Speech and Signal Processing (ICASSP 2015)

French-speaking conferences:

- French Conference on Planning, Decision-making, and Learning in Control Systems (JFPDA 2015)
- Conférence francophone sur l'Apprentissage Automatique (CAP 2015)

10.1.3. Journal

10.1.3.1. Member of the editorial boards

- Neurocomputing

10.1.3.2. Reviewer - Reviewing activities

- IEEE Signal Processing Letters
- IEEE Transactions on Information Theory
- IEEE Transactions on Neural Networks and Learning Systems
- Scandinavian Journal of Statistics
- Speech Communication
- Journal of Machine Learning Research
- Artificial Intelligence Journal
- Machine Learning Journal
- Journal of Artificial Intelligence Research

10.1.4. Invited talks

- Gergely Neu, invited talk at the "Data, Learning, and Inference" (DALI) workshop on Learning Theory, Spain, April 2015.
- Gergely Neu, invited talk at the "Learning Faster from Easy Data" NIPS workshop, Montreal, December 2015.
- Olivier Pietquin, NIPS Workshop on Spoken Language Understanding (SLU NIPS 2015).
- Michal Valko, invited talk at "LIX, École Polytechnique" April 2015
- A. Lazaric, *Open Questions in Transfer in RL*, "Machine Learning with Interdependent and Non-identically Distributed Data", Dagsthul, Germany, April 2015.
- A. Lazaric, *Exploiting Easy Data in Online Optimization*, "Modal Seminar Series", Inria Lille, May 2015.
- A. Lazaric, *Policy Search in Reinforcement Learning*, Criteo, Paris, June 2015.
- A. Lazaric, *Transfer in Multi-Armed Bandit*, Aston University, Birmingham, July 2015.
- A. Lazaric, *Transfer in Reinforcement Learning*, "Promotion et Developpement de l'Intelligence Artificielle", Paris, October 2015.
- A. Lazaric, *The Hidden World of Bandits*, "Workshop on Sequential Learning and Applications", Toulouse, November 2015.
- J. Mary, Invited talk at Euratechnologies on *recent advances of machine learning and deep learning for Sequential data*, Lille, November 2015.
- J. Mary, Invited talk at Recommender Days organized by CRITEO http://recommenders.fr/, December 2015.

10.1.5. Scientific expertise

- Agence Nationale pour la Recherche (ANR)
- Fonds National pour la Recherche Scientifique (FNRS), Belgium
- Olivier Pietquin and Philippe Preux are expert for H2020 European Program
- *M. Valko* is an elected member of the evaluation committee and participates in the hiring, promotion, and evaluation juries of Inria, notably
  - Hiring committee for junior researchers at Inria Nancy (2015)
  - Selection committee for Inria award for scientific excellence (2015)
  - Selection committee for CR promotions (2015)

- Jérémie Mary is expert for the Research Council of Norway.
- *A. Lazaric* is a member of the committee for research evaluation (CER) at Inria Lille.
- *A. Lazaric* was a member of the hiring committee for junior researchers at Inria Lille (2015).

10.1.6. Research administration

- Philippe Preux is:
  - head of the DatInG (Data Intelligence Group) thematic group at CRIStAL that gathers 4 research groups, totaling more than 70 people,
  - member of the scientific committee of CRIStAL,
  - member of the Bureau du Comité des Projets at Inria Lille.
- Romaric Gaudel is:
  - board member of CRIStAL
  - manager of proml mailing list. This mailing list gathers French-speaking researchers from Machine Learning community.
- Olivier Pietquin is:
  - board member of CRIStAL
  - board member of the IEEA faculty at Univ. Lille 1
  - member of the computer science department of the Ecole Doctorale SPI
  - in charge of research and innovation for the computer science department of Univ. Lille 1

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence: R. Gaudel, 2015/2016 Spring: programmation R pour statistiques et sociologie quantitative, 28h eqTD, L1, université Lille 3, France

Licence: R. Gaudel, 2015/2016 Fall: préparation au C2i niveau 1, 24h eqTD, L1-3, université Lille 3, France

Licence: R. Gaudel, 2015/2016 Fall: travail collaboratif et à distance dans un monde numérique, 13h eqTD, L1-3 (enseignement à distance), université Lille 3, France

Master: M. Valko, 2014/2015 Spring: Graphs in Machine Learning, 27h eqTD, M2, ENS Cachan

Master: M. Valko, 2015/2016 Fall: Graphs in Machine Learning, 27h eqTD, M2, ENS Cachan

Master : A. Lazaric, Reinforcement Learning, 25h eqTD, M2, ENS Cachan, France

Master : A. Lazaric, Reinforcement Learning, 25h eqTD, M2, Ecole Centrale Lille, France

Summer school : A. Lazaric, Reinforcement Learning, 8h eqTD, Toulouse, France

Master: J. Mary, 2015/2016 Fall: Machine learning with R, 20h eqTD, M2, Ecole Centrale de Lille.

E-learning

SPOC: R. Gaudel, Marc Tommasi and Alain Preux, culture numérique S3, 8 semaines, Moodle, université Lille 3, licence (L1), formation initiale, tous les étudiants (> 3 000).

Ph. Preux:

- modeling and simulation of the dynamics of behavior, Master 1 in Psychology & master in Cognitive Science, Université de Lille 3
- Formal neural networks, Master 1 in Cognitive Science, Université de Lille 3
- Supervised Learning, Licence 3 MIASHS, Université de Lille 3
- Advanced Data Mining, master 2 MIASHS, Université de Lille 3
- Unsupervised learning, master 1 MIASHS, Université de Lille 3

C. Dimitrakakis:

- Web Fundamentals, Licence MIASHS, Université de Lille 3
- Supervised Learning, Master MIASHS, Université de Lille 3

B. Piot:

- Networks, Master SID, Université de Lille 3
- Databases, Licence MIASHS, Université de Lille 3
- Excel, Licence MIASHS, Université de Lille 3
- Databases, Master SIAD, Université de Lille 1
- Networks, Master SIAD, Université de Lille 1
- UML, Université de Lille 1

O. Pietquin:

- Machine learning, Master Informatique, Université Lille 1
- Machine learning and decision making, Master Informatique, Université Lille 1
- Bayesian signal processing, Engineering degree, Université de Mons (Belgique)

10.2.2. Supervision

Supervision of PhD:

- HDR: Jérémie Mary, Université de Lille 3, defended Nov 2015
- PhD: Amir Sani, Université de Lille 1, defended May 2015, Munos, Lazaric
- PhD: Marta Soare, Université de Lille 1, defended Dec 2015, Munos, Lazaric
- PhD in progress: Marc Abeille, since Sept. 2014, Munos, Lazaric
- PhD in progress: Merwan Barlier, since oct. 2014, Pietquin
- PhD in progress: Alexandre Bérard, since Oct. 2014, Pietquin
- PhD in progress: Daniele Calandriello, since Oct. 2014, Preux, Lazaric, Valko
- PnD in progress: Nicolas Carrara, since Oct. 2015, Pietquin
- PhD in progress: Ronan Fruit, since Dec. 2015, Ryabko, Lazaric
- PhD in progress: Pratik Gajane, since oct. 2014, Preux
- PhD in progress: Hadrien Glaude, since Feb. 2014, Pietquin
- PhD in progress: Jean-Bastien Grill, since Oct. 2014, Munos, Valko
- PhD in progress: Frédéric Guillou, since Oct. 2013, Preux, Mary, Gaudel
- PhD in progress: Tomáš Kocák, since Oct. 2013, Munos, Valko
- PhD in progress: Vincenzo Musco, since Nov. 2013, Preux, Monperrus
- PhD in progress: Julien Perolat, since Oct. 2014, Pietquin
- PhD in progress: Florian Strub, since Jan. 2016, Pietquin, Mary
- PhD in progress: Romain Warlop, since Sep. 2015, Preux, Mary, Lazaric

Management of diplomas:

- Ph. Preux is the head of the master in computer science “machine learning and data science”, Université de Lille 3.
- J. Mary is the head of the “Web analyst” track in master MIASHS, Université de Lille 3.
- head of the MoCAD master at Université Lille 1.

10.2.3. Juries

Ph. Preux has been member of the PhD juries:

- Manel Tagorti, Université de Lorraine,
- Yacine Nair Benrekia, Université de Nantes,
- El Mehdi Rochd, Université de Marseille.

Ph. Preux has been member of the HdR juries:

- Jérémie Mary, Université de Lille 3.

A. Lazaric has been member of the PhD juries:

- Rodrigue Talla Kuate, Aston University, Birmingham, UK.
- Kamyar Azzizade (PhD qualification), University of California Irvine, USA.

O. Pietquin has been member of the PhD juries:

- Nicolas Galichet, Université Paris-Saclay,
- Alaedine Mihoub, Université Grenoble-Alpes,
- Emmanuel Ferreira, Université d'Avignon et des Pays du Vaucluse.

10.3. Popularization

- Ph. Preux participates to a radio program on machine learning.
- Ph. Preux co-authors two papers on "Le Monde" binaire blog [38].
- Inria interview with N. Vayatis and M. Valko about teaching machine learning at ENS, July 2015.
- Rue89 interviewed M. Valko about machine learning at Inria, June 2015.
- Intel advertising face recognition software (that included the work of M. Valko), February 2015.
- M. Valko volunteered in teaching mathematics in "Association de la Clé", that helps students from underprivileged backgrounds.
- Jérémie Mary was interviewed by "Ca m'intéresse" for a special issue on artificial intelligence.

SIERRA Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific events organisation

10.1.1.1. General chair, scientific chair

- F. Bach, program co-chair for International Conference on Machine Learning (ICML), 2015.

10.1.1.2. Member of the organizing committees

- A. d'Aspremont, workshop organizer, "Optimisation pour l'apprentissage statistique", École de Physique des Houches, January 2015.
- V. Perchey, local chair for the main conference in learning theory, the "Conference On Learning Theory – COLT'15", July 2015.
- V. Perchey, workshop organizer, "Challenges in Optimization for Data Science", July 2015.
- V. Perchey, organizer of the conference "French Symposium on Games - Theory and Applications", May 2015.

10.1.2. Scientific events selection

10.1.2.1. Area chairs

- S. Lacoste-Julien, International Conference on Machine Learning (ICML), 2015.

10.1.3. Journal

10.1.3.1. Member of the editorial boards

- A. d'Aspremont, SIAM Journal on Optimization, Associate Editor.
- F. Bach, Journal of Machine Learning Research, Action Editor.
- F. Bach, Information and Inference, Associate Editor.
- F. Bach, SIAM Journal on Imaging Sciences, Associate Editor.

10.1.4. Others

- A. d'Aspremont is on the scientific committee for Programme Gaspard Monge pour l'Optimisation, Fondation mathématique Jacques Hadamard.
- S. Lacoste-Julien received a NIPS 2015 Outstanding Reviewer Award.

10.1.5. Invited talks

- S. Arlot, "V-fold selection of kernel estimators", EMS 2015: European Meeting of Statisticians, session 'Recent advances in resampling methods' (Amsterdam, July 6, 2015).
- S. Arlot, "Cross-validation for estimator selection", Workshop "Information Based Complexity and Model Selection" (IHP, Paris, April 9, 2015).
- S. Arlot, "Comparaison de procédures de validation croisée (V-fold)", Conférence "Calibration statistique" (Université de Nice - Sophia Antipolis, February 20, 2015).
- S. Arlot, "Cross-validation for estimator selection", SMPGD 2015: Statistical Methods for Post Genomic Data (Ludwig-Maximilians University, February 13, 2015).
- S. Arlot, "Sélection d'estimateurs par validation croisée", Colloquium du MAP5 (Université Paris Descartes, November 13, 2015).

- S. Arlot, “Analyse du biais de forêts purement aléatoires", Séminaire de Probabilités et Statistiques (Lieu, Laboratoire JA Dieudonné, Université de Nice - Sophia Antipolis, January 8, 2015).
- A. d’Aspremont, “Ranking from Pairwise Comparisons using Seriation”:
  - Séminaire du Collège de France, June 2015.
  - International Symposium on Mathematical Programming, July 2015.
  - STATLEARN 2015.
  - Fields Institute workshop on big data, Toronto, Feb. 2015.
- A. d’Aspremont, “Seriation, DNA Sequencing and Nanopores”, Datalead 2015.
- A. d’Aspremont, “Optimisation et apprentissage”, Conférence SCOR - Institut des actuaires, December 2015.
- F. Bach, Invited presentation at Workshop on Data-driven Algorithmics, Harvard, September 2015.
- F. Bach, Invited tutorial at Allerton Conference, Urbana-Champaign, 2015.
- F. Bach, Invited seminar at Ecole Polytechnique Federale de Lausanne, October 2015.
- D. Garreau, “Kernel change-point detection", 45th Ecole d’été de Saint-Flour (Saint-Flour, July 7-17, 2015).
- S. Lacoste-Julien, “Sequential Kernel Herding: Frank-Wolfe Optimization for Particle Filtering", invited talk at the Bayes in Paris Seminar at ENSAE, Paris, France, March 2015.
- S. Lacoste-Julien, “SAGA: a fast incremental gradient method", invited talk in the Nonsmooth Optimization cluster at ISMP 2015 (22nd International Symposium on Mathematical Programming), Pittsburgh, PA, USA, July 2015.
- S. Lacoste-Julien, “Frank-Wolfe Optimization for Structured Machine Learning”:
  - McGill University, Montreal, Canada, December 2015.
  - Université de Montréal, Montreal, Canada, December 2015.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Master : S. Arlot and F. Bach, “Statistical learning", 24h, M2, Université Paris-Sud.

Master : A. d’Aspremont is co-director of the Master MASH (Mathématiques, Apprentissage et Sciences Humaines) at Paris Sciences et Lettres.

Master : A. d’Aspremont, “Optimisation et apprentissage”, 21h, M2 (MVA), ENS Cachan.

Master : A. d’Aspremont, “Optimisation convexe”, 21h, M2, Ecole Normale Supérieure.

Master : S. Lacoste-Julien and F. Bach, “Apprentissage statistique”, 35h, M1, Ecole Normale Supérieure.

Master : S. Lacoste-Julien and F. Bach (together with G. Obozinski), 30h, M2 (MVA), ENS Cachan.

Master : S. Lacoste-Julien, “Projets informatiques”, 20h, M2 (MASH), Université de Paris-Dauphine.

10.2.2. Supervision

PhD : Fabian Pedregosa, “Feature extraction and supervised learning on fMRI: from practice to theory”, UPMC, February 20th, 2015, F. Bach, co-advised with A. Gramfort (Telecom).

PhD : Rémi Lajugie, “Structured prediction for sequential data”, UPMC, September 18th, 2015, S. Arlot and F. Bach.

PhD : Fajwel Fogel, “Convex and spectral relaxations for phase retrieval, seriation and ranking”, Ecole Polytechnique, November 18th, 2015, A. d’Aspremont and F. Bach.

PhD in progress: Thomas Schatz, September 2012, F. Bach, co-advised with E. Dupoux (ENS, cognitive sciences).

PhD in progress: Sesh Kumar, September 2013, F. Bach.

PhD in progress: Rafael Rezende, September 2013, F. Bach, co-advised with J. Ponce.

PhD in progress: Anastasia Podosinnikova, December 2013, F. Bach and S. Lacoste-Julien.

PhD in progress: Christophe Dupuy, January 2014, F. Bach, co-advised with C. Diot (Technicolor).

PhD in progress: Jean-Baptiste Alayrac, September 2014, S. Lacoste-Julien, co-advised with J. Sivic and I. Laptev.

PhD in progress: Aymeric Dieuleveut, September 2014, F. Bach.

PhD in progress: Nicolas Flammarion, September 2014, A. d'Aspremont and F. Bach.

PhD in progress: Damien Garreau, September 2014, S. Arlot (co-advised with G. Biau).

PhD in progress: Vincent Roulet, October 2014, A. d'Aspremont.

PhD in progress: Anaël Bonneton, December 2014, F. Bach, located in Agence nationale de la sécurité des systèmes d'information (ANSSI).

PhD in progress: Dmitry Babichev, September 2015, F. Bach, co-advised with A. Judistky (Univ. Grenoble).

PhD in progress: Rémi Leblond, September 2015, S. Lacoste-Julien.

PhD in progress: Antoine Recanati, September 2015, A. d'Aspremont.

PhD in progress: Damien Scieur, September 2015, A. d'Aspremont and F. Bach.

PhD in progress: Tatiana Shpakova, September 2015, F. Bach.

10.2.3. Juries

S. Arlot, member of the PhD Committee for Maud Thomas at Université Paris Diderot on July 2, 2015.

F. Bach, member of the HDR committee of Jeremie Mary (Univ. Lille).

10.3. Popularization

S. Lacoste-Julien, general public talk “Apprentissage automatique et big data", at La Maison des Sciences, Châtenay-Malabry, France, September 2015.

TAO Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific events organisation

10.1.1.1. Member of the organizing committees

- Cécile Germain, DataScience@LHC Workshop http://indico.cern.ch/event/395374/, 9-13 November 2015, CERN
- Marc Schoenauer, Steering Committee, Parallel Problem Solving from Nature (PPSN); Steering Committee, Learning and Intelligent OptimizatioN (LION).
- Michele Sebag, Steering Committee, Eur. Conf. on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD).

10.1.2. Scientific events selection

10.1.2.1. Member of the conference program committees

All TAO members are members of the Program Committees of the main conferences in the fields of Machine Learning, Evolutionary Computation, and Information Processing.

10.1.2.2. Reviewer

All TAO member review papers for the most prestigious journals in the fields of Machine Learning and Evolutionary Computation.

10.1.3. Journal

10.1.3.1. Member of the editorial boards

- Anne Auger, member of Editorial Board, *Evolutionary Computation Journal*, MIT Press.
- Gregory Grefenstette, member of Editorial Board, *Journal of Natural Language Engineering*, Cambridge University Press.
- Nikolaus Hansen, member of Editorial Board, *Evolutionary Computation Journal*, MIT Press.
- Marc Schoenauer, member of Advisory Board, *Evolutionary Computation Journal*, MIT Press; member of Editorial Board, *Genetic Programming and Evolutionary Machines*, Springer Verlag; action editor, *Journal of Machine Learning Research*(JMLR).
- Michèle Sebag: Editorial Board, Machine Learning, Springer Verlag.
- Olivier Teytaud, action editor, *Journal of Machine Learning Research* (JMLR).

10.1.3.2. Reviewer - Reviewing activities

All members of the team reviewed numerous articles for international conferences and journals.

10.1.4. Invited talks

- Aurélien Decelle, workshop of Machine Learning at the Yukawa institute.
- Cyril Furtlehner, International Workshop on Innovative Algorithms for Big Data (Kyoto).
- Gregory Grefenstette, CLEF 2015, Toulouse, Sept. 8, 2015
- Gregory Grefenstette, Journée Recherche - les Big Data, Ecole Contrale Marseille, Nov 18, 2015
- Philippe Caillou, Workshop PICS at Hanoi, May 2015.
- Odalric Maillard, Journées YSP at IHP, Paris, Jan. 31, 2015.
- Odalric Maillard, Workshop CIMI at Toulouse, November 2015.
- Yann Ollivier, Deep Learning Workshop at ICML 2015.
- Yann Ollivier, Deep Learning Scoping Workshop of the Alan Turing Institute (Edinburgh).
- Yann Ollivier, American Mathematical Society - Mathematical Association of America Joint Math Meetings (San Antonio).
- Michèle Sebag, DATA 2015
- Michèle Sebag, AutoML Wshop, @ ICML 2015.
- Michèle Sebag, Constructive Machine Learning Wshop, @ICML 2015
- Michèle Sebag, Intelligence Artificielle et Interfaces Hommes-Machines 2015
- Michèle Sebag and Marc Schoenauer, Big Data Business Convention, *Seeded Influencer Ranking*, Dec. 2015.
- Marc Schoenauer, *Numbers don't Count*, Conférence en l'honneur de Laurence Halpern, January 2015.
- Marc Schoenauer*Rank-SVM for flexible optimization*, ISEGI seminar, Lisbon, Jan. 2015.
- Marc Schoenauer and Michèle Sebag, *More is different: When, and What For?*, JS Inria, Nancy, June 2015.
- Marc Schoenauer, DataScience@LHC, Nov. 9-13, 2015.

10.1.5. Leadership within the scientific community

- Michèle Sebag, Chair of Steering Committee, ECML-PKDD.
- Marc Schoenauer, elected Chair of ACM-SIGEVO (Special Interest Group on Evolutionary Computation), July 2015 (2-years term).
- Marc Schoenauer, founding President of SPECIES (Society for the Promotion of Evolutionary Computation In Europe and Surroundings), that organizes the yearly series of conferences *EvoStar*.

10.1.6. Scientific expertise

- Cécile Germain, evaluator for the H2020 calls: *ICT-2015 Topic ICT-16 – Big Data - research*
- Gregory Grefenstette, evaluator for FU21, Cap Digital, Digiteo (IASI) review board
- Gregory Grefenstette, project reviewer for the H2020 (SemCare): *Information and Communication Technologies ICT*
- Michele Sebag, evaluator for the Swedish Foundation for Strategic Research; CNRS PEPS Fascido, FNRS Belgium
- Michele Sebag, president of a CNRS hiring jury (EHESS, research engineer); member of hiring juries for Inria, U. Paris-1, U. Lille.

10.1.7. Research administration

- Cécile Germain, elected member of the Scientific Council and of its board. University officer for scientific computing. Deputy head of the computer science departement, in charge of research.
- Philippe Caillou, elected member of the Scientific Council and Academic Council.

- Marc Schoenauer, *Délégué Scientifique* (aka VP-Research) for the Inria Saclay Île-de-France branch.
- Michele Sebag, deputy director of LRI, CNRS UMR 8623; elected member of the Research Council of Univ. Paris-Saclay; head of the Research Committee of Labex Digicosme; member of the Board of the Lidexes *Institut de la Société Numérique* and *Center for Data Science*.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence : Philippe Caillou, Computer Science for students in Accounting and Management, 192h, L1, IUT Sceaux, Univ. Paris Sud

Licence : Aurélien Decelle, Computer Architecture, 50h, L3, Univ. Paris-Sud

Licence : Aurélien Decelle, Machine Learning and Artificial Life, 27h, L2, Univ. Paris-Sud

Licence : Aurélien Decelle, Databases, 30h, L2, Univ. Paris-Sud

Master : Aurélien Decelle, Machine Learning, 6h, M2 Recherche, Univ. Paris-Sud

Master : Anne Auger, Optimisation, 12h, M2 Recherche, U. Paris-sud.

Master : Philippe Caillou, Multi-Agents Systems, 27h, M2 Recherche, U. Paris-sud.

Master : Philippe Caillou, Multi-Agent Based Simulation, 3h, M2 Recherche, U. Paris-Dauphine.

Master : Guillaume Charpiat (et Gaétan Marceau), Machine Learning, 18h, M2 Recherche, Centrale-Supelec.

Master : Odalric-Ambrym Maillard, Machine Learning, 6h, M2 Recherche, Univ. Paris-Sud

Master : Yann Ollivier, Deep learning, 4h, M2 Recherche, Telecom/Polytech.

Master : Michèle Sebag, Machine Learning, 12h; Deep Learning, 6h; Reinforcement Learning, 6h; M2 Recherche, U. Paris-sud.

10.2.2. Supervision

PhD: Yoann ISAAC, *Représentations redondantes pour les signaux d'électroencéphalographie*, 29/05/2015, Jamal Atif and Michèl`e Sebag.

Alexandre Chotard, *Markov Chain Analysis of Evolution Strategies*, Université Paris-Sud, 24/09/2015, Anne Auger and Nikolaus Hansen

PhD: Nicolas Galichet, Contributions to Multi-Armed Bandits: Risk-Awareness and Sub-Sampling for Linear Contextual Bandits, Université Paris-Sud, 28/09/2015, Michèle Sebag.

PhD: Guohua Zhang, *Exploratory Robotic Controllers: An Evolution and Information Theory Driven Approach*, Université Paris-Sud, 24/09/2015, Michèle Sebag and Jingzhong Zhang.

PhD: Jialin Liu, *Portfolio methods in uncertain contexts*, Université Paris-Sud, 11/12/2015, Olivier Teytaud and Marc Schoenauer.

PhD in progress: Ouassim AIT ELHARA, *Large-scale optimization and Evolution Strategies*, 1/09/2012, Anne Auger and Nikolaus Hansen.

PhD in progress: Sandra ASTETE-MORALES, *Noisy optimization, with applications to power systems*, 1/09/2013, Olivier Teytaud.

PhD in progress: Asma ATAMNA, *Evolution Strategies and Constrained Optimization*, 1/10/2013, Anne Auger and Nikolaus Hansen.

PhD in progress: Jérémy BENSADON, *Applications of Information Theory to Statistical Learning*, Yann Ollivier, defense planned for 02/02/2016.

PhD in progress: Nacim BELKHIR, *On-line parameter tuning*, 1/5/2014, Marc Schoenauer and Johann Dréo (Thalès), CIFRE Thalès.

PhD in progress: Vincent BERTHIER, *Large scale parallel optimization, with application to power systems*, 1/09/2013, Michèle Sebag et Olivier Teytaud.

PhD in progress: Marie-Liesse CAUWET, *Artificial intelligence with uncertainties, application to power systems*, 1/09/2013, Olivier Teytaud.

PhD in progress: François GONARD, *Automatic optimization algorithm selection and configuration*, 1/10/2014, Marc Schoenauer and Michèle Sebag, thèse IRT SystemX.

PhD in progress: Pierre-Yves MASSÉ, *Gradient Methods for Statistical Learning*, 1/10/2014, Yann Ollivier

PhD in progress: Sourava MISHRA, *AutoML: An empirical approach to Machine Learning*, 1/10/2014, Balazs Kégl and Michèle Sebag

PhD in progress: Thomas SCHMITT, *A Collaborative Filtering Approach to Matching Job Openings and Job Seekers*, 1/11/2014, Michèle Sebag.

PhD in progress : Emmanuel Maggiori, *Large-Scale Remote Sensing Image Classification*, 1/1/2015, Guillaume Charpiat (with Yuliya Tarabalka and Pierre Alliez, Inria Sophia-Antipolis)

PhD in progress: Mehdi Cherti *Learning to discover: supervised discrimination and unsupervised representation learning with applications in particle physics.* 01/10/2014, Balazs Kegl and Cécile Germain.

PhD in progress: Karima Rafes *Gestion et sécurité des données personnelles dans le web des objets*. 01/10/2014, Serge Abiteboul and Cécile Germain.

10.2.3. Juries

All senior TAO members participated to many PhD or HDR committees.

10.3. Popularization

- **Odalric-Ambrym Maillard** May, participation to day "Petits débrouillards", during which secondary schools students come and visit a lab.
- **Aurélien Decelle** May, participation to day "Petits débrouillards", during which secondary schools students come and visit a lab.
- **Yann Ollivier** co-organizes the European Union Contest for Young Scientists (science fair for high school students from 30+ countries organized by the European Commission).
- **Michele Sebag**, participation to IHP debate on AI and society; panel at Technion Research Day.

ASPI Project-Team

8. Dissemination

8.1. Promoting scientific activities

8.1.1. Scientific events organisation

Valérie Monbet has co–organized the workshop on *Stochastic Model-Data Coupled Representations for the Upper Ocean Dynamics*, the kick–off meeting of the SEACS project, held in Landeda in May 2015.

8.1.2. Journal

Valérie Monbet has been the guest editor of a special issue (volume 156, number 1) on stochastic weather generators, in *Journal de la Société Française de Statistique*.

8.1.3. Invited talks

Valérie Monbet has given an invited talk on Markov–switching vector autoregressive models for multivariate time series of air temperature, at *47èmes Journées de Statistique*, held in Lille in June 2015.

8.2. Teaching, supervision, thesis committees

8.2.1. Teaching

Patrick Héas gives a course on Monte Carlo simulation methods in image analysis at université de Rennes 1, within the SISEA (signal, image, systèmes embarqués, automatique, école doctorale MATISSE) track of the master in electronical engineering and telecommunications.

François Le Gland gives

- a course on Kalman filtering and hidden Markov models, at université de Rennes 1, within the SISEA (signal, image, systèmes embarqués, automatique, école doctorale MATISSE) track of the master in electronical engineering and telecommunications,
- a 3rd year course on Bayesian filtering and particle approximation, at ENSTA (école nationale supérieure de techniques avancées), Paris, within the systems and control module,
- a 3rd year course on linear and nonlinear filtering, at ENSAI (école nationale de la statistique et de l'analyse de l'information), Ker Lann, within the statistical engineering track,
- and a 3rd year course on hidden Markov models, at Télécom Bretagne, Brest.

Valérie Monbet gives several courses on data analysis, on time series, and on mathematical statistics, all at université de Rennes 1 within the master on statistics and econometrics.

8.2.2. Supervision

François Le Gland and Valérie Monbet are jointly supervising one PhD student

- Chau Thi Tuyet Trang, provisional title: *Non parametric filtering for Metocean multi–source data fusion*, université de Rennes 1, started in October 2015, expected defense in October 2018, co–direction: Pierre Ailliot (université de Bretagne Occidentale).

François Le Gland is supervising two others PhD students

- Alexandre Lepoutre, provisional title: *Detection issues in track–before–detect*, université de Rennes 1, started in October 2010, expected defense in 2016, funding: ONERA grant, co–direction: Olivier Rabaste (ONERA, Palaiseau),
- Kersane Zoubert–Ousseni, provisional title: *Particle filters for hybrid indoor navigation with smartphones*, université de Rennes 1, started in December 2014, expected defense in 2017, funding: CEA grant, co–direction: Christophe Villien (CEA LETI, Grenoble).

Valérie Monbet is supervising one other PhD student

- Audrey Poterie, provisional title: *Régression d'une variable ordinale par des données longitudinales de grande dimension : application à la modélisation des effets secondaires suite à un traitement par radiothérapie*, université de Rennes 1, started in October 2015, expected defense in October 2018, co–direction : Jean–François Dupuy (INSA de Rennes), Laurent Rouvière (université de Haute Bretagne).

8.2.3. Thesis committees

François Le Gland has been a reviewer for the PhD theses of Jana Kalawoun (université Paris Sud, Orsay, advisors: Gilles Celeux and Patrick Pamphile) and Antoine Campi (université Paul Sabatier, Toulouse, advisors: Christophe Baehr, Alain Dabas and Pierre Del Moral). He has also been a member of the committee for the PhD thesis of Eugenia Koblents (Universidad Carlos III de Madrid, advisor: Joaquín Míguez).

Valérie Monbet has been a member of the committee for the PhD theses of Xavier Kergadallan (École des Pont ParisTech, advisor: Michel Benoit) and Khalil El Waled (université de Haute Bretagne, advisor: Dominique Dehay).

8.3. Participation in workshops, seminars, lectures, etc.

In addition to presentations with a publication in the proceedings, which are listed at the end of the document in the bibliography, members of ASPI have also given the following presentations.

Frédéric Cérou has presented the results about the convergence of ABC at the probability and stochastic processes seminar of université de Rennes 1, and at the applied mathematics seminar of université de Nantes, both in November 2015.

Patrick Héas has given a talk on 3D wind field reconstruction by infrared sounding, at EUMETSAT (European Organisation for the Exploitation of Meteorological Satellites) in Darmstadt, Germany, in June 2015, and a talk on reduced–order modeling of hidden dynamics, at the international workshop on reduced basis, POD and PGD model reduction techniques, held in Cachan in November 2015.

François Le Gland has given a talk on simulation–based algorithms for the optimization of sensor deployment at the department of signal theory and communications of Universidad Carlos III de Madrid, in February 2015, and a talk on marginalization in rare event simulation for switching diffusions at the ONERA workshop on particle algorithms, held in Toulouse in May 2015.

Valérie Monbet has given a talk on switching autoregressive models for stochastic weather generators, and application to temperature series, at the kick–off meeting of the SEACS project, held in Landeda in May 2015.

Kersane Zoubert–Ousseni has given a poster presentation at the summer school on Foundations and Advances in Stochastic Filtering, held in Barcelona in June 2015.

CQFD Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific events organisation

10.1.1.1. Member of the organizing committees

- NEO 2015 - Pierrick Legrand, http://neo.cinvestav.mx/NEO2015/. The aim of the NEO is to bring together scientists from different fields and countries to discuss recent advances in numerical and evolutionary optimization. The workshop has first been held in 2013 in Tlalnepantla, Mexico, and the NEO 2015 is the third edition.
- EVOLVE 2015 - Pierrick Legrand, http://www.evolve-conference.org/. The aim of the EVOLVE international conference is to build a bridge between probability, statistics, set oriented numerics and evolutionary computing, as well as to identify new common and challenging research aspects. The event is also intended to foster a growing interest for robust and efficient new methods with a sound theoretical background and, last but not least, to unify theory-inspired methods and cutting-edge techniques aimed at reaching top-level performance. By gathering researchers with different backgrounds, ranging from computer science to mathematics, statistics and physics, to name just a few, a unified view and vocabulary can emerge where theoretical and practical advancements may echo in different domains.. The wide use and large applicability spectrum of evolutionary algorithms in real-life applications nurture the need for further developing solid theoretical grounds. Among many examples intricate mathematical objects show, as proven by acknowledged new results that evolutionary algorithms can, in some cases, act as good and fast estimators. Similarly, the handling of large quantities of data may require the use of distributed environments where the probability of failure and the stability of algorithms need to be formally addressed. Common practice confirms in many cases that theory-based results ensure performance guarantee factors for evolutionary algorithms in areas as diverse as optimization, bio-informatics or robotics. Summarizing, EVOLVE focuses on basic research and application challenges arising in theory, new paradigms and practice, thus aiming to provide a unifying view and to raise questions related to reliability, performance guarantees and modeling.
- EA 2015 - Pierrick Legrand, https://ea2015.inria.fr/. 12th Biennial International Conference on Artificial Evolution, EA 2015, held in Lyon (France). Previous EA editions took place in Bordeaux (2013), Angers (2011), Strasbourg (2009), Tours (2007), Lille (2005), Marseille (2003), Le Creusot (2001), Dunkerque (1999), Nimes (1997), Brest (1995), and Toulouse (1994). Authors had been invited to present original work relevant to Artificial Evolution, including, but not limited to: Evolutionary Computation, Evolutionary Optimization, Co-evolution, Artificial Life, Population Dynamics, Theory, Algorithmics and Modeling, Implementations, Application of Evolutionary Paradigms to the Real World (industry, biosciences, ...), other Biologically Inspired Paradigms (Swarm, Artificial Ants, Artificial Immune Systems, Cultural Algorithms...), Memetic Algorithms, Multi-Objective Optimization, Constraint Handling, Parallel Algorithms, Dynamic Optimization, Machine Learning, and hybridization with other soft computing techniques. Each submitted paper was reviewed by three members of the International Program Committee. Among the 31 submissions received, 18 papers were selected for oral presentation and 8 other papers for poster presentation. For the previous editions, a selection of the best papers which were presented at the conference and further revised were published (see LNCS volumes 1063, 1363, 1829, 2310, 2936, 3871, 4926, 5975, 7401 and 8752).

10.1.2. Scientific events selection

10.1.2.1. Member of the conference program committees

J. Anselmi has been a member of the TPC of the international conferences VALUETOOLS-2015, ScalCom-2015 and ASMTA-2015.

M. Chavent has been a member of program commitee of the SFC 2015 conference.

P. Legrand has been a member of program committee for Gecco 2015, EA 2015, NEO 2015, EVOLVE 2015.

F. Dufour has been a member of the program committee of the international SIAM conference on Control & its Application, July 2015.

10.1.3. Journal

10.1.3.1. Member of the editorial boards

F. Dufour is associate editor of the journal: SIAM Journal of Control and Optimization since 2009.

J. Saracco is an associate editor of the journal Case Studies in Business, Industry and Government Statistics (CSBIGS) since 2006.

10.1.3.2. Reviewer - Reviewing activities

All the members of CQFD are regular reviewers for several international journals and conferences in applied probability, statistics and operations research.

10.1.4. Invited talks

J. Anselmi gave the following invited talks;

- *Open-loop control of parallel queues: asymptotics of periodic policies*, international workshop "Modern Trends in Controlled Stochastic Processes: Theory and Applications", Liverpool, July 2015
- *Open-loop control of parallel queues: asymptotics of periodic policies*, international conference APS INFORMS, Istanbul, July 2015

M. Chavent gave invited talks at the seminar of MIAT-INRA of Toulouse in june 2015, and the seminar of the IECL of Nancy in November 2015.

A. Genadot gave a talk at the seminar of IMB, October 2015.

F. Dufour gave the invited talk *Constrained and Unconstrained Optimal Control of Piecewise Deterministic Markov Processes* international workshop "Modern Trends in Controlled Stochastic Processes: Theory and Applications", Liverpool, July 2015.

10.1.5. Research administration

M Chavent and J. Saracco are elected members of CNU 26.

B. de Saporta was an elected member of CNU 26 until sept. 2014.

J. Saracco is vice president of the french statistical society (SFdS).

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Licence : J. Anselmi, Probability, 12,41 hours ("équivalent TD"), L1, ENSEIRB MATMECA filiere telecom, Bordeaux, France
- Licence : J. Anselmi, Probability, 8 hours ("équivalent TD"), L1, ENSEIRB MATMECA filiere electronique, Bordeaux, France
- Licence: M. Chavent, Statistique descriptive, 36 ETD, L1, Bordeaux university, France
- License: M. Chavent, Modélisation statistique, 18 ETD, niveau L3, Bordeaux university, France
- Master : M. Chavent, Analyse des données 2, 25 ETD, niveau M2, Bordeaux university, France
- Master : M. Chavent, Apprentissage automatique, 25 ETD, niveau M2, Bordeaux university, France
- Licence : F. Dufour, Probabilités et statistiques, 16 heures, niveau L3, Institut Polytechnique de Bordeaux, école ENSEIRB-MATMECA, France.

- Master : F. Dufour, Méthodes numériques pour la fiabilité, 24 heures, niveau M1, Institut Polytechnique de Bordeaux, école ENSEIRB-MATMECA, France.
- Master : F. Dufour, Probabilités, 20 heures, niveau M1, Institut Polytechnique de Bordeaux, école ENSEIRB-MATMECA, France.
- P. Legrand, Algèbre (responsable de l'UE), Licence 1 SCIMS (108 heures)
- P. Legrand, Informatique pour les mathÃ©matiques (responsable de l'UE), Licence 1 et Licence 2 (36 heures)
- P. Legrand, Espaces Euclidiens. (responsable de l'UE), Licence 2 SCIMS (54 heures)
- P. Legrand, Formation Matlab pour le personnel CNRS (responsable de l'UE), (24 heures)
- Licence: J. Saracco, Descriptive statistics, 10.5h, L3, First year of ENSC, France
- Licence: J. Saracco, Mathematical statistics, 20h, L3, First year of ENSC, France
- Licence:J. Saracco, Data analysis (multidimensional statistics), 20h, L3, First year of ENSC, France
- Licence: J. Saracco, Mathematics (complement of linear algebra), 20h, L3, First year of ENSC, France
- Master: J. Saracco, Statistical modeling, 20h, M1, Second year of ENSC, France
- Master: J. Saracco, training project, 20h, M1, Second year of ENSC, France
- A. Genadot, Probabilités (30h), Licence MIASHS deuxième année, Université de Bordeaux.
- A. Genadot, Modélisation statistique (18h), Licence MIASHS troisième année, Université de Bordeaux.
- A. Genadot, Probabilités (30h), Master MIMSE première année, Université de Bordeaux.

10.2.2. Supervision

PhD completed : Karim Claudio, Un outil d'aide à la maîtrise des pertes dans les réseaux d'eau potable : mise en place d'un modèle de fuite multi-état en secteur hydraulique instrumenté , supervised by J. Saracco and V. Couallier.

PhD completed : Amaury Labenne, Approche Statistique du diagnostic territorial par la notion de qualité de vie, supervised by M. Chavent, J. Saracco and V. Kuentz.

PhD in progress : Adrien Todeschini, Elaboration et validation d'un système de recommandation bayésien, supervised by F. Caron and M. Chavent.

PhD completed : Isabelle Charlier, Optimal quantization applied to conditional quantile estimation, University of Bordeaux and Université Libre de Bruxelle, supervised by J. Saracco and D. Paindaveine.

PhD in progress : Christophe Nivot, Optimisation de la chaîne de montage du futur lanceur européen, September 2013, B. supervised by B. de Saporta and F. Dufour

PhD in progress : Alizé Geeraert, Contrôle optimal des processus Markoviens déterministes par morceaux et application à la maintenance, University of Bordeaux, September 2014, supervised by B. de Saporta and F. Dufour.

Nicolas Antunes: Application d'algorithmes prédictifs à l'identification de niches ecoculturelles des population du passé: approche ethnoarcheologique. Financement ERC F. D'Errico. Co-encadrement : D'Errico, Del Moral, Legrand. Cette thèse consiste à utiliser des algorithmes de type GARP pour prédire l'existence de niches écologiques à partir de données climatologiques. 2011-2014.

Emigdio Z. Flores Lopez, "Classification of mental states with genetic programming", PhD in engineering sciences. Funded by Conacyt (Consejo Nacional de Ciencia y Tecnologia), national scholarship for PNPC programs (Programa Nacional de Posgrados Calidad), Mexico. Co-encadrement: L. Trujillo (50%), P. Legrand (50%). 2013-2016.

10.2.3. Juries

J. Anselmi has been a member of the jury for the PhD defense of Henda Ben Cheikh, with thesis granted by INSA–Toulouse.

P. Legrand has been a member of the jury for the PhD defense of Nicolas Antunes, Ubx.

MATHRISK Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific events organisation

- A. Alfonsi: Co-organizer of the working group seminar of MathRisk “Méthodes stochastiques et finance”. http://cermics.enpc.fr/~alfonsi/GTMSF.html
- R. Dumitrescu: Co-organizer of the young researchers in Mathematics Seminar of Université Paris Dauphine.
- B. Jourdain (with B. Bouchard and E. Gobet): organization of the 2015-2016 thematic semester on Monte Carlo methods financed by the Institute Louis Bachelier.

10.1.2. Journal

10.1.2.1. Member of the editorial boards

- R. Elie

  Associate editor of *SIAM Journal on Financial Mathematics (SIFIN)* (since November 2014)
- D. Lamberton

  Associate editor of
  - Mathematical Finance,
  - Associate editor of ESAIM Probability & Statistics
- A. Sulem

  Associate editor of
  - 2011- Present: *Journal of Mathematical Analysis and Applications (JMAA)*
  - 2009- Present: *International Journal of Stochastic Analysis (IJSA)*
  - 2008- Present: *SIAM Journal on Financial Mathematics (SIFIN)*

10.1.2.2. Reviewer - Reviewing activities

The members of the team reviewed numerous papers for numerous journals.

10.1.3. Invited talks

- A. Alfonsi

  - "Dynamic optimal execution in a mixed–market–impact Hawkes price model", Workshop on "The Mathematics of High Frequency Financial Markets", IPAM, Los Angeles, April 13 2015:

  - "Optimal transport bounds between the time-marginals of a multidimensional diffusion and its Euler scheme", AMS-EMS-SPM conference, Porto, June 10 2015:

  - "Dynamic optimal execution in a mixed–market–impact Hawkes price model", séminaire de la chaire Risques financiers, June 12 2015:

  - "Optimal execution in a Hawkes price model", London-Paris Bachelier Workshop on Mathematical Finance 2015, Sept 26 2015
- R. Dumitrescu

  - Financial Mathematics Seminar, Univ Marne-la-Vallée, ENPC and Inria, 12 January

  - Stochastic Analysis Seminar, Imperial College London, 17 March

  - Financial Mathematics Seminar, Univ Evry, 26 March.

- B. Jourdain

  - Conference in honor of Vlad Bally, le Mans, 6-9 October 2015 : Strong convergence properties of the Ninomiya Victoir scheme and applications to multilevel Monte Carlo

  - Workshop on NASPDE 2015, Inria Sophia, 22-23 September 2015 : Multitype sticky particles and diagonal hyperbolic systems of PDEs

  - Workshop BIRS Free-energy calculations, a mathematical perspective, Oaxaca 19-24 july 2015 : Analysis of discrete space versions of the self-healing umbrella sampling and well-tempered metadynamics algorithms

  - Workshop Probabilistic Numerical Methods for Non-Linear PDEs, Imperial College London , 29 june-1st july 2015 : On a stochastic particle approximation of the Keller-Segel equation - Workshop Numerical Probability and Applications to Finance, Enit Tunis, 30 april 2015 : Strong convergence properties of the Ninomiya Victoir scheme and applications to multilevel Monte Carlo

  - Maxwell Colloquium, Edimbourg, 6 february 2015 : Multitype sticky particles and diagonal hyperbolic systems of PDEs
- C. Labart : **MCM2015**, Linz, Austria, July 2015.
- J. Lelong : **MCM2015**, Linz, Austria, July 2015.
- D. Lamberton:

  - Workshop Numerical Probability and Applications to Finance, Tunis, April 2015. "On the Canadian approximation of the American put".

  - Workshop in honor of Vlad Bally, Stochastic Calculus, Monte Carlo Methods and Mathematical Finance, Le Mans October 2015. "On the binomial approximation of the American put".
- R. Elie

  - 7th general AMAMEF and Swissquote conference, Lausanne, 2015

  - Workshop Advanced methods in Mathematical Finance, Angers, France, 2015

  - Workshop on current challenges in financial mathematics and economics, London, 2015

  - Workshop on smart energy and stochastic optimization, ENPC, Paris, 2015

  - South East Asia conference in Mathematical Finance, Siem Reap, Cambodia, 2015

  - 9^{th} Bachelier Colloquium, Metabief, France, 2015

  - seminar, Imperial College, London, 2015
- A. Lionnet - MS-EMS-SPM International Meeting, special session on Stochastic Numerical Methods for Non-linear Equations. Porto, June 10-13.

  - 2nd IMA conference on mathematics in finance. Manchester, 18–19 June.

  - Workshop on Probabilistic numerical methods for nonlinear PDEs at Imperial College. London, June 29 – July 1.

  - The 2015 conference on Stochastic Processes and Applications. Oxford, July 13–17.
- A. Sulem

  - International Conference "Stochastics and Computational Finance 2015- from academia to industry", July 6-10, 2015, ISEG - University of Lisbon, keynote speaker, http://www.scf2015.com

  - Conference on Mathematical Finance and Partial Differential Equations, Rutgers University, New Brunswick, New Jersey, May 2015, Plenary speaker, http://www.finmath.rutgers.edu/mfpde2015/

  - Second conference on " Stochastics of Environmental and Financial Economics", April 20-24, 2015, Academy of Science in Oslo, Plenary speaker,
    http://www.mn.uio.no/math/english/research/groups/stochastic-analysis/events/conferences/StochEnviron-april2015/index.html

- Conference in honor of Prof. V. Bally, "Stochastic Calculus and Malliavin Calculus, Monte-Carlo Methods and Mathematical Finance", Université du Mans, 6-9 Octobre 2015. http://lmm.univ-lemans.fr/spip.php?article129

10.1.4. Research administration

- A. Alfonsi: In charge of the Master “Finance and Application” at the Ecole des Ponts.
- V. Bally: Member of the scientific committee of Université Paris-Est Marne-la-Vallée; member of the scientific committee and responsible of the theme "Stochastic equations and PDEs" of ; Responsible of the Probability team of LAMA (until April) and organizer of the seminar of the LAMA laboratory. Labex Bezout;
- R. Dumitrescu : creation of the ALUMNI of *Fondation des Sciences Mathematiques de Paris*
- B. Jourdain: Head of the doctoral school MSTIC, University Paris-Est
- D. Lamberton: Vice-president for research at Université Paris-Est Marne-la-Vallée
- A. Sulem: member of the Committee for technology development , Inria Paris-Rocquencourt

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Undergraduate programs

A. Alfonsi: “Modéliser, Programmer et Simuler”, second year course at the Ecole des Ponts.

R. Dumitrescu, Applied courses (Travaux Dirigés) "introduction to finance", L2, Université Paris Dauphine

R. Elie

- Machine learning for actuarial sciences , Institut des actuaires français

- Arbitrage et valorisation d’options, ENSAE

- Introduction to Python, TD L2 Université Paris-Est

B. Jourdain : - course "Probability theory and statistics", first year ENPC

- "Introduction to probability theory", 1st year, Ecole Polytechnique

- "Stochastic numerical methods", 3rd year, Ecole Polytechnique

- projects in finance and numerical methods, 3rd year, Ecole Polytechnique

A. Lionnet

Stochastic Processes, ESIEA, Paris , 18h .

Graduate programs

A. Alfonsi:

- “Calibration, Volatilité Locale et Stochastique”, third-year course at ENSTA (Master with University Paris I).

- “Traitement des données de marché : aspects statistiques et calibration”, lecture for the Master at UPEMLV.

- A. Alfonsi: “Mesures de risque”, Master course of UPEMLV and Paris VI.

V. Bally,

- Advanced Probability (Master 1 Recherche Mathématiques et Application, University of Marne-la-Vallée

- "The Malliavin calculus and applications in finance", 30h, Master 2 Mathematical Finance, Université Marne la Vallée

- V. Bally, " Interest Rates", 20h, Master 2 Mathematical Finance , Université Marne la Vallée

- V. Bally, " Risk methodes in actuarial science", 36h, Master IMIS, Université Marne la Vallée

R. Dumitrescu, Applied courses (Travaux Dirigés) in " Asset pricing by absence of arbitrage opportunity", Université Paris Dauphine

R. Elie - Imperfect markets modeling M2 Master MASEF (Paris-Dauphine)

- Machine learning and applications, Master 2 Mathematics, , ENPC

- Portfolio management and risk measures, Master Actuariat, Université Paris-Est

- Arbitrage, volatility and portfolio management, Master 2 Math. Finance, Université Paris-Est

B. Jourdain, B. Lapeyre "Monte-Carlo methods", 3rd year ENPC and Master Recherche Mathématiques et Application, University of Marne-la-Vallée

A. Sulem

- "Finite difference for PDEs in Finance", Master 2 MASEF, Université Paris IX-Dauphine, Département Mathématiques et Informatique de la Décision et des Organisations (MIDO), 18h.

- Master of Mathematics, University of Luxembourg, 22 h lectures and responsible of the module "Numerical Methods in Finance".

10.2.2. Supervision

Anis Al Gerbi (started november 2013) "Discretization of stochastic differential equations and systemic risk modeling", supervised by B. Jourdain and E. Clément

Pierre Blanc, "Price impact on marker orders and limit order books (from Nov. 2012), Ecole des Ponts, Adviser : A. Alfonsi defended on October 9th 2015.

Rui Chen (Fondation Sciences Mathématiques de Paris grant), "Stochastic Control of mean field systems and applications to systemic risk, from September 2014, Université Paris-Dauphine, Adviser A. Sulem

Roxana Dumitrescu, (Fondation Sciences Mathématiques de Paris grant, RDMath Ile de France), *Contributions au contrôle stochastique avec des espérances non linéaires et aux équations stochastiques rrétrogrades* , Advisers: A. Sulem with B. Bouchard and R. Elie, defended on September 28 2015, Université Paris-Dauphine.

Antoine Ly, CIFRE agreement, Partner: Miliman, advisers: R. Elie and Arthur Charpentier, Applications du machine learning en Actuariat, started 2015, Advisers: R. Elie and Arthur Charpentier

Sebastien Mollaret, CIFRE agreement, Partner: Natixis, Valorisation et couverture dans les modèles à changement de régime started 2015, Advisers: R. Elie.

Ernesto Palidda, Advisers: A. Alfonsi and Bernard Lapeyre, Ecole des Ponts, defended on May 29 2015.

- Paulo Pigato, "Lower bounds for the density of the solution of SDE's under the weak Hörmander condition, and applications in finance", Advisers: V. Bally and A. Dai Pra, University of Padova, defended October 2015, Université Paris-Est Marne la Vallée,

Victor Rabiet : "On a class of jump type stochastic equations", Université Paris-Est Marne la Vallée, Advisers: V. Bally (75 %) and E. Locherbach, defended June 2015.

Clément Rey (from Oct. 2012), " High order discretization schemes for singular diffusions", Ecole des Ponts, Advisers : A. Alfonsi and Vlad Bally, defended on December 4th 2015.

Giulia Terenzi (from October 2015) "American options in complex financial models", Advisers : D. Lamberton and Lucia Caramellino, from University Tor Vergata, Rome.

Alexandre Zhou (started November 2015) "Analysis of stochastic particle methods applied to finance", supervised by B.Jourdain

10.2.3. Juries

- B.Jourdain

  - Head of the HCERES visit committee of the Laboratoire de Mathématiques Raphael Salem, Rouen, November 20 2015

  - PhD of Victor Rabiet, defended on June 23 2015, University Paris-Est

  - PhD of Thi Quynh Giang NGUYEN, defended on October 19 2015, University Paris-Est

- A. Sulem

  - PhD Roxana Dumitrescu, September 2015, Université Paris-Dauphine

  - Referee (Rapporteur) HdR *"Quelques contributions en finance mathématique, risque de liquidité et finance d'entreprise"*, Ly Vath Vathana, Université Evry Val d'Essonne, November 23 2015

  - Faculty opponent, PhD thesis "*Aspects of Waiting and Contracting in Game Theory*", Peter Helgesson, Chalmers University of Technology and University of Gothenburg, Sweden, June 5th 2015.

  - Sulem : Committe for the recrutment of a Professor of Insurance Mathematics, ETH Zurich January 2015

  - Committe for the recrutment of a Professor (in Financial Mathematics and numerical probability, Laboratoire de probabilités, Université Paris-Diderot, May 2015

  - Committe for the recrutment of a researcher (chargé de recherche) Inria Paris-Rocquencourt, June 2015

10.3. Popularization

- A. Lionnet:

  - article on Financial Mathematics published in the online popularization magazine Interstices https://interstices.info/jcms/p_82123/les-mathematiques-financieres-des-quants

  - Conference given for middle-schoolers at University Paris 8 during the "Week of Mathematics 2015".

  - Participation to the colloquium "Science and You", Nancy, June 1–6.

  - The two entries of A. Lionnet to the contest SIAM Math Matters, Apply It (https://www.siam.org/careers/matters.php were selected to be turned into a poster. One was on financial derivatites (https://www.siam.org/careers/pdf/deriviatives.pdf) the other on systemic risk (https://www.siam.org/careers/pdf/risk.pdf).

- A. Sulem:

  - "Applications of stochastic analysis", (2015), invited contribution for the *Princeton Companion to Applied Mathematics*, http://press.princeton.edu/titles/10592.html

  - Responsible for the partnership of Inria with Institut Henri Poincaré for the creation of a museum of Mathematics.

TOSCA Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Promotion of Mathematics in the industry

- M. Deaconu was invited to give a talk at the Workshop *Table ronde Assurance*, on october 2015, in Luxembourg.
- D. Talay continued to serve as the Vice-President of the Fondation d'Entreprise Natixis which aims to contribute to develop research in quantitative finance. He also serves as a member of the Scientific Committee of the Foundation.
- D. Talay continued to serve as a member of the Scientific Committee of the AMIES National Agency aimed to promote interactions between Mathematics and Industry.

10.1.2. Scientific events organisation

- M. Deaconu organized an interdisciplinary workshop: Avalanches and rupture phenomena, 3-4 February 2015 in Nancy. URL: http://iecl.univ-lorraine.fr/~Madalina.Deaconu/workshop2015
- E. Tanré animates a transverse working group . In 2015, Philip Protter (Columbia University) gave lectures on Brownian Motion and Poisson Processes (six courses with around 45 participants issued from 12 teams).
- E. Tanré has organized two mini-courses for the interdisciplinary axe of University of Nice "Modélisation Théorique et Computationnelle en Neurosciences et Sciences Cognitives". B. de Saporta (University of Montpellier) gave a course on Piecewise deterministic Markov Processes. M. Thieullen (University Paris 6) gave a course on a "Probabilistic study of membrane potential models, including ionic channels."
- D. Villemonais organized a mini-symposium at the *Congrès SMAI 2015*, at Les Karellis in June 2015.

10.1.2.1. Member of the organizing committees

- J. Inglis and E. Tanré were members of the organizing committee of the First International Conference on Mathematical NeuroScience (ICMNS) in Juan-les-Pins (June 2015), 170 participants.

10.1.3. Scientific events selection

10.1.3.1. Chair of conference program committees

- D. Talay organized and chaired the NASPDE 2015 conference in Sophia Antipolis (September 2015), 50 participants.

10.1.3.2. Member of the conference program committees

- A. Lejay is member of the conference program committees of *CANUM 2016* (Obernai, France) and *Journées de Probabilités 2015* (Toulouse, France).
- D. Talay served as a member of the scientific committee of the First International Conference on Mathematical NeuroScience (ICMNS) in Juan-les-Pins (June 2015), 2015 Conference in Stochastic Analysis and Mathematical Physics in Chile (September 2015), Conference in the honor of Vlad Bally (Le Mans, October 2015).

10.1.4. Journal

10.1.4.1. Member of the editorial boards

- N. Champagnat served as an Associate Editor of *Stochastic Models*.

- A. Lejay is one of the three editors of the *Séminaire de Probabilités*.
- M. Bossy served as an Associate Editor of *Annals of Applied Probability*.
- D. Talay served as an Associate Editor of: *Stochastic Processes and their Applications*, *ESAIM Probability and Statistics*, *Stochastics and Dynamics*, *Journal of Scientific Computing*, *Monte Carlo Methods and Applications*, *Oxford IMA Journal of Numerical Analysis*, *SIAM Journal on Scientific Computing*, *Communications in Applied Mathematics and Computational Science*, *Éditions de l'École Polytechnique*. He also served as the Co-editor in chief of *MathematicS in Action*.

10.1.4.2. Reviewer - Reviewing activities

- M. Bossy wrote reviews for manuscripts submitted to *Bernoulli Journal*, *Stochastic Processes and their Applications*.
- N. Champagnat wrote reviews for manuscripts submitted to *Journal of Mathematical Biology*, *Bernoulli Journal*, *Stochastic Processes and their Applications*, *Journal of Theoretical Biology*.
- M. Deaconu wrote reviews for *Mathematical Reviews of the American Mathematical Society (MathSciNet)* and for manuscripts submitted to *Mathematics and Computers in Simulation*, *ESAIM: Mathematical Modelling and Numerical Analysis*, *Journal of Computational and Applied Mathematics*, *Revue Roumaine de Mathématiques Pures et Appliquées* and *Journal of Nonlinear Analysis: Real World Applications*.
- C. Fritsch wrote reviews for manuscripts submitted to *Stochastic Models* and *Ecological Modelling*.
- J. Inglis wrote reviews for *Mathematical Reviews of the American Mathematical Society (MathSciNet)* and for manuscripts submitted to *Annales de l'Institut Henri Poincaré*.
- A. Lejay wrote reviews for manuscripts submitted to *Electronic Journal of Probability*, *Journal of Computational Mathematics*, *Journal of Mathematical Analysis and Applications*, *Journal of Scientific Computing*. *Journal of Statistical Computation and Simulation*, *Mathematics and Computers in Simulation*, *Probability and Mathematical StatisticsSIAM Journal of Control and Optimization* and *SIAM Journal of Mathematical Analysis*.
- E. Tanré wrote reviews for manuscripts submitted to *Bernoulli Journal*, *The Journal of Mathematical Neuroscience*, *Applied Mathematical Finance*, *Annales de l'Institut Henri Poincaré*, *Probabilistic Engineering Mechanics*.
- D. Villemonais wrote reviews for*Mathematical Reviews of the American Mathematical Society (MathSciNet)* and for manuscripts submitted to *Science China Mathematics*, *Journal of Inequalities and Applications*, *Theoretical Population Biology* and *Electronic Communications in Probability*.

10.1.5. Invited talks

- M. Bossy has been invited to give talks at the *Workshop on "Subgrid-scale modeling for particle simulations in LES"* (Chatou) in March, at the *Workshop EDS Incertitudes of GDR MascotNum* (Paris) in May, at the *workshop "probabilistic numerical methods for non-linear PDE"* ICL (London) in June, and at the *NASPDE Workshop*, (Sophia Antipolis) in September.
- M. Bossy gave seminar talks at the MFEE departement EDF Chatou, and a Colloqium talk at LJAD (Nice) in November.
- N. Champagnat has been invited to give talks at the *Conference on Probability and Biological Evolution* at CIRM (Luminy), Marseille in June; at the *MMEE 2015* conference (Mathematical Models in Ecology and Evolution) in Paris in July; the *Workshop on Probabilistic models in Biology* in Playa del Carmen, Mexico, in October; and the *Colloque Franco-Maghrébin en Analyse Stochastique* in Nice in November.
- M. Deaconu has been invited to give talks to the *Eighth Congress of Romanian Mathematicians,* June 26-July 1, 2015, Iaşi, Romania; and the *Rencontre EDP/Probas*, March 6, 2015, Institut Henri Poincaré, Paris.

- C. Fritsch has been invited to give talks at the *Congrès SMAI 2015*, at Les Karellis in June and at the MMEE 2015 conference (*Mathematical Models in Ecology and Evolution*) in Paris in July.
- B. Henry has been invited to give talks at the *Congrès SMAI 2015*, at Les Karellis in June and at the *SPA Conference* (Sotchastic processes and applications) in Oxford in July. He also presented a poster at the MMEE 2015 conference (*Mathematical Models in Ecology and Evolution*) (Paris, July).
- J. Inglis gave a talk at the workshop *QFT methods in neuronal networks dynamics* at the University of Bielefeld, as part of the Mathemacs European project.
- A. Lejay has been invited to give talks at the *Conference in honor of Professor Vlad Bally* (Le Mans, October), the conference *Stochastic Analysis and Numerical Perspectives* (Sophia-Antipolis, September), the *AMS / EMS / SPM International Meeting* (Porto, June), the *Stochastic analysis, controlled dynamical systems an applications* (Iena, February).
- A. Lejay also gave seminar talks at Univ. Paris 6 in June, Univ. Marne-la-Vallée in May and CMAP (École Polytechnique) in February.
- P. Pigato gave seminar talks at the *Séminaire de probabilités et statistiques* of IECL, Univ. Lorraine, in November, and at the *Séminaire de probabilités et statistiques* of Laboratoire Dieudonné, Univ. Nice, in December.
- A. Richard gave an invited talk at the *French-Maghrebi conference on stochastic analysis* held in Nice in November, and seminar talks at the *IECL Probability Seminar* in March, at the *Seminar of the CIMFAV* (Valparaíso) in June.
- K. Salhi gave a talk at the 8th European Summer School in Financial Mathematics (Le mans, September 2015) . He also participated to the Advanced Risk and Portfolio Management bootcamp 2015 organized by SYMMYS (New York University, July 2015).
- D. Talay gave a seminar at Ecole Polytechnique in March and at Paris 6 university in May.
- D. Talay gave an invited talk at the 2015 Conference on Stochastic Analysis and Mathematicla Physics (Chile, September 2015) and at the Conference of the Honor of Vlad Bally (Le Mans, October 2015).
- E. Tanré gave invited talks at the ANR SloFaDyBio meeting in March, at an HBP-EITN workshop in April, and a seminar talk at the *IECL Probability Seminar* in October.
- D. Villemonais has been invited to give a lecture on quasi-stationary distributions at the LPMA (Paris) during the *Thematic meeting of the STAB ANR project* of November 2015.

10.1.6. Scientific expertise

- M. Bossy wrote reports about research projects submitted to the PACA Region council.
- M. Bossy was member of the hiring committee 26 PRF 4320 (Univ. Nice).
- N. Champagnat reported on a proposal submitted to ANR (Agence Nationale de la Recherche).
- N. Champagnat was member of the hiring committee 26 MCF 1219 (Univ. Paul Sabatier, Toulouse III).
- M. Deaconu was member of the hiring committee 26 MCF 0221 (Univ. Bourgogne) and of the hiring committee 26 MCF 80 (Univ. Bordeaux).
- D. Villemonais was member of the hiring committee 26 MCF 0706 (IUT de Dijon).
- D. Talay reported on applications to Research Grants Council (RGC) of Hong Kong.
- D. Talay participated in a Professor position recruitment committee at Paris 7 University.

10.1.7. Research administration

- M. Bossy is a elected member of the Inria Evaluation Board.
- M. Bossy has been a member of the Committee for junior permanent research positions of Inria Grenoble Rhône-Alpes.

- M. Bossy is a member of the *Collectif Andromede* of the PACA Region council.
- N. Champagnat is a member of the *Commission de Développement Technologique* and the *Commission Information Scientifique et Technique* of Inria Nancy - Grand Est, a subsitute member of the *Comité de Centre* of Inria Nancy - Grand Est, *Responsable Scientifique* for the library of Mathematics of the IECL, member of the *Conseil du laboratoire* of IECL (as *responsable scientifique* of the library). He is also local correspondent of the COERLE (*Comité Opérationel d'Évaluation des Risques Légaux et Éthiques*) for the Inria Research Center of Nancy - Grand Est. This year, together with Aline Wagner (Inria Nancy - Grand Est), he is in charge of the new version of the application form for research approval by the COERLE (ethical committe of Inria).
- M. Deaconu is a member of the *Bureau du Comité de Projet* of Inria Nancy - Grand Est, and of the *Comité de Projet* of Inria Nancy - Grand Est.
- A. Lejay is a member of the Administration Council of the SMAI.
- A. Lejay is a member of the COMIPERS of Inria Nancy Grand-Est.
- A. Lejay has been appointed as representative of Inria Nancy-Grand Est in the Agence Mathématiques et Entreprise (AMIES)

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Master: M. Bossy, *Continuous time stochastic models for quantitative Finance*, 45h, M2 IMAFA (Informatique et Mathématiques Appliquées à la Finance et à l'Assurance), École Polytechnique Universitaire, Univ. Nice - Sophia Antipolis, France.

Master : M. Bossy, *Risk on energetic financial markets*, 27h, Master Spécialisé, Ingénierie et Gestion de l'Énergie, Mine ParisTech, France.

Master : M. Bossy *Stochastic Particle Methods for PDEs*, 18h, M2 Probabilité et Applications, Université Paris 6, France.

Master: N. Champagnat, *Introduction to Quantitative Finance*, 18h, M1, École des Mines de Nancy, France.

Master: N. Champagnat, *Introduction to Quantitative Finance*, 18h, M2, École des Mines de Nancy, France.

Master: N. Champagnat, *Processus de Markov et génétique des populations*, 22.5h, M2 MFA, Université de Lorraine, France.

Master: N. Champagnat, *Processus de Galton-Watson*, 22.5h, M2 "double diplôme" Mathématiques et Applications - Ecole Supérieure des Sciences et de Technologie de Hammam Sousse, Tunisie (lieu des cours) - Université de Lorraine, France.

Master: M. Deaconu, *Équations différentielles stochastiques : résolution numérique et applications*, 21h, M2, École des Mines de Nancy, France.

Master: M. Deaconu, *Simulation de variables aléatoires*, 12h, M1, École des Mines de Nancy, France.

Master: M. Deaconu, *Modélisation stochastique*, 30h, M2, Université de Lorraine, France.

Master: M. Deaconu, *Simulation Monte Carlo*, 24h, M1, Faculté de Droit, Sciences Economiques et Gestion, Université de Lorraine, France.

Master: C. Fritsch, *Introduction à la finance quantitative*, 3h, M1, École des Mines de Nancy, France.

Licence: C. Fritsch, *Analyse numérique*, 18h, L3, École des Mines de Nancy, France.

Licence: B. Henry, *Analyse numérique*, 18h, L3, École des Mines de Nancy, France.

Licence: B. Henry, *Probabilités*, 36h, L3, École des Mines de Nancy, France.

Master: J. Inglis, *Numerical Methods for Computational Finance*, 15h, M2, UNSA (Mathmods Erasmus Mundus), France.

Master: A. Lejay, *Simulation des marchés financiers*, 28.5h, M2, Université de Lorraine (Metz), France.

Master: A. Lejay, *Probabilités Appliquées*, 22.5h, M2, Université de Lorraine (Nancy), France.

Master: A. Richard and E. Tanré, *Advanced Numerics for Computational Finance*, 40h (2*20h), M2, UNSA (Mathmods Erasmus Mundus), France.

Licence: K. Salhi, *Mathématiques Appliquées et Probabilités*, 24h, L3, Télécom Nancy, France

Master: K. Salhi, *Probabilités et Statistiques*, 42h, M1, ENSEM Nancy, France.

Master: D. Talay *Invariant measures of diffusion processes*, 18h, M2 Probabilité et Applications, Université Paris 6, France.

Master: E. Tanré, *Numerical Probability in Finance*, 44h, M2, Ecole PolytechNice (IMAFA), France.

Master: E. Tanré, *Mathematical Methods for Neurosciences*, 37h, M2, ENS - Master MVA / Paris 6 - Master Maths-Bio, France.

10.2.2. Supervision

- HdR: Nicolas Champagnat, *Approches stochastiques et déterministes en biologie: dynamique adaptative, modélisation pour l'écologie, génétique des populations et dynamique moléculaire; caractère bien posé d'équations différentielles ordinaires et stochastiques*, Univ. Lorraine, 18 February 2015.
- PhD : Lionel Lenôtre, *Étude et simulation de processus de diffusion biaisés*, Université Rennes 1, November 27, 2015, Jocelyne Erhel (Irisa), Antoine Lejay, Géraldine Pichot (Irisa).
- PhD in progress: Maxime Bonelli, *Behavioral finance approach to risk assessment in quantitative portfolio management*, September 2013, M. Bossy.
- PhD in progress: Antone Brault, *Équations rugueuses linéaires*, October 2015, Laure Coutin (Université Toulouse III) and A. Lejay.
- PhD in progress: Baldwin Dumortier, *Contrôle acoustique des éoliennes*, October 2014, M. Deaconu and E. Vincent (EPI MULTISPEECH).
- PhD in progress: Benoît Henry, *Modeling Evolutionary Relationships Between Three-Dimensional Protein Structures*, October 2013, N. Champagnat, D. Ritchie (EPI ORPAILLEUR).
- PhD in progress: Radu Maftei, *A stochastic approach to colloidal particle agglomeration in turbulent flows*, November 2014, M. Bossy.
- PhD in progress: Khaled Salhi, *Estimation of Risk in Finance*, October 2013, M. Deaconu and A. Lejay.
- PhD in progress: Milica Tomasevic, *Stochastic approaches to Keller–Segel equations*, October 2015, D. Talay.

10.2.3. Juries

- M. Bossy served as a referee for the Ph.D. theses of Bénédicte Jourdier, *Ressource éolienne en France métropolitaine : méthodes d'évaluation du potentiel, variabilité et tendances*, École Polytechnique, September 2015, and of Lucie Rottner, *Reconstruction de l'atmosphère turbulente à partir d'un lidar Doppler 3D et étude du couplage avec Meso-NH*, Université Toulouse III Paul Sabatier, December 2015.
- M. Bossy served as an examiner for the Ph.D. thesis of M. Michaël Benguigui, *Valorisation d'option américaine et Value At Risk de portefeuille sur cluster de GPUs/CPUs hétérogène*. Université de Nice, August 2015.

- N. Champagnat served as a referee for the Ph.D. theses of Cristobal Quininao, *Mathematical modeling in Neuroscience: collective behavior of neuronal networks and the role of local homeoproteins diffusion in morphogenesis*, UPMC, June 2, 2015, and of Marie-Noémie Thai, *Processus de Fleming-Viot, distributions quasi-stationnaires et marches aléatoires en interaction de type champ moyen*, Univ. Paris-Est, November 27, 2015.
- A. Lejay served as an examiner for the Ph.D. thesis of Thi Quynh Giang Nguyen, *Méthodes de Monte Carlo pour les diffusions discontinues : application à la tomographie par impédance électrique*, Université de Toulon, October 2015; of Willian Minvielle, *Some problems related to statistical error in stochastic homogenization*, Université Paris-Est, October, 2015; of Lionel Lenôtre, *Étude et simulation de processus de diffusion biaisés*, Université Rennes 1, November, 2015 and of Johann Nicod, *Approximation numérique par chaos de Wiener de quelques EDPS*, Université Paris-Est, December 2015.
- D. Talay served as an examiner for the HdR of Nicolas Champagnat (see above) and the Ph.D. theses of Lorick Huang, *EDS dirigées par des processus stables. Méthode parametrix pour des estimées de densités et application aux algorithmes stochastiques*, Université Paris Diderot Sorbonne Paris Cité, July 2015, and of Athena Picarelli, *Sur des problèmes de contrôle stochastique avec contraintes sur l'état*, Ecole Polytechnique, April 2015. He also served as a referee for the Ph.D. thesis of Clément Rey, *Etude et Modélisation d'équations différentielles stochastiques*, Paris-Est university, December 2015.

10.3. Popularization

- M. Deaconu gave an interview for a paper in Eureka Lorraine. URL : http://eureka.lorraine.eu/jahia/Jahia/pid/1968?actu=23647