RESEARCH CENTER

FIELD
Applied Mathematics, Computation and Simulation

Activity Report 2012

Section Dissemination

Edition: 2013-04-24

STOCHASTIC METHODS AND MODELS

BACCHUS Team

9. Dissemination

9.1. Scientific Animation

Rémi Abgrall is co-chief editor of the "International Journal on Numerical in Fluids". He is associate editor of the "Journal of Computational Physics", "Mathematcis of Computation", "Journal of Scientific Computiong", "Computers and Fluids" and "Advances in Applied Mathematics and Mechanics". He is member of the editorial board of the "Mathematiques et Applications" book series of the french SMAI (edited by Springer Verlag). He is responsible of the GAMNI group of SMAI. He is tresurer of ECCOMAS. He is the organiser of HONOM 2013 (http://honom2013.bordeaux.inria.fr/index.html) and member of the scientific comitee of second ECCOMAS Young Investigators Conference. He is member of the scientific comitee of ICCFD, the Scientific computing comitee of ECCOMAS and ICCP8 (http://www.math.hkbu.edu.hk/ICCP8/). He has been member of the AERES visitiong comitee of DynFuids (EA 92, ENSAM Paris Tech) and president of the AERES visiting comitee of the Jacques Louis Lions Laboratory (U. Pierre et Marie Curie, U. Paris Diderot). He is also member of the CERFACS scientific comitee and is in charge of the CERFACS "Commission socle" with S. Candel and J.C. André.

Héloïse Beaugendre is a member of the organizing committee of the second ECCOMAS Young Investigators Conference (http://yic2013.sciencesconf.org) and of HONOM2013.

Cécile Dobrzynski is one of the organizers of the seminar "*Modélisation et Calcul*" of the Institut de Mathématiques de Bordeaux. She is member of the board of the GAMNI group of SMAI, of which she is secretary. She is member of the scientific committee for the organization of mini-symposia in collaboration between SMAI-GAMNI and AUM for CANUM 2012. She is co-chairwoman for the organization of the second ECCOMAS Young Investigators Conference (http://yic2013.sciencesconf.org).

Pietro Marco Congedo is a member of the organizing committee of HONOM2013. In 2012, he gave 5 invited seminars (von Karman Institute ; Complex modeling, Convergence, and Uncertainty Quantification Workshop, Uppsala, Sweden ; Workshop BIS2012, Paris ; SIAM Conference on Uncertainty Quantification, Raleigh, USA ; 1st meeting GAMNI-MAIRCI: Précision et Incertitudes, Paris).

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

License : Héloïse Beaugendre, Responsable des projets TER de première année, 10h, L3, ENSEIRB-MATMÉCA, France

License : Héloïse Beaugendre, Encadrement TER, 16h, L3, ENSEIRB-MATMÉCA, France

Licence : Cécile Dobrzynski, Langages en Fortran 90, 43h, L3, ENSEIRB-MATMÉCA, France

Licence : Cécile Dobrzynski, Analyse numérique, 24h, M1, ENSEIRB-MATMÉCA, France

Licence : Cécile Dobrzynski, Outils informatiques pour le calcul scientifique, 65h, formation Structures Composites, ENSCBP, France

Licence : François Pellegrini : Architecture des ordinateurs, 25h, L2, Université Bordeaux 1

Licence : Pietro Marco Congedo, Analyse numérique II, 24h, M1, ENSEIRB-MATMÉCA, France

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

Master : Héloïse Beaugendre, Mise à niveau en algorithmique et Programmation, 30h, M1, ENSEIRB-MATMÉCA, France

Master : Héloïse Beaugendre, Approximation numérique et problèmes industriels, 52h, M1, ENSEIRB-MATMÉCA, France

Master : Héloïse Beaugendre, Outils informatiques pour l'insertion professionnelle, 9h, M2, Université Bordeaux 1, France

Master : Héloïse Beaugendre, Calcul Haute Performance, 40h, M1, ENSEIRB-MATMÉCA, France

Master : Héloïse Beaugendre, Calcul Haute Performance, 40h, M2, ENSEIRB-MATMÉCA and Université Bordeaux 1, France

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

Master : Cécile Dobrzynski, TER, 18h, M1, ENSEIRB-MATMÉCA, France

Master : Pietro Marco Congedo, Simulation Numérique des écoulements fluides, 20h, M3, ENSEIRB-MATMÉCA, France

Master : Mario Ricchiuto, Simulation Numérique des écoulements fluides, 16h, M3, ENSEIRB-MATMÉCA, France

Master : Pietro Marco Congedo, TER, 16h, M1, ENSEIRB-MATMÉCA, France

Master : Mario Ricchiuto, Post-graduate course on introduction to CFD, 18h, M2 IAS (Master Spe´cialisé Inge´nierie Ae´ronautique et Spatiale, http://www.ensam.fr/fr/formation_initiale/masteres_specialises/ingenierie_aeronautique_et_spatiale), ENSAM, France

Doctorat : Mario Ricchiuto, Post-Graduate plenary lecture on the use of residual methods in CFD, 3h, D1, CEMRACS summer school, France

9.2.2. Supervision

PhD : Algiane Froehly, Méthodes numériques pour la prise en compte exacte des géométries dans les codes de CFD, Université Bordeaux I, 7 Dec. 2012, R. Abgrall and C. Dobrzynski

PhD : Arnaud Krust, Méthodes d'enrichissement pour Les équations de Navier Stokes, Université de Bordeaux I, 31 october 2012. R. Abgrall.

PhD : François Vilar, "Méthodes d'ordre très élevé pour la résolution des équations de l'hydrodynamique Lagrangienne multidimensionnelles". Université de Bordeaux I, November 16th 2012, R. Abgrall and P.H. Maire.

PhD in progress: Dante de Santis, High order residual distribution methods for turbulent steady flows, since september 2010, R. Abgrall and M. Ricchiuto

PhD in progress: Gianluca Geraci. multi-resolution inspired methods for uncertainty quantification, 2010, Rémi Abgrall and Pietro Marco Congedo.

PhD in progress : Sébastien Fourestier, Redistribution dynamique parallèle efficace de la charge pour les problèmes numériques de très grandes tailles, 2008, F. Pellegrini

PhD in progress : Damien Genêt, Conception d'une plate forme parallèle pour la résolution des EDP de la mécanique des fluides, 2009, M. Ricchiuto, F. Pellegrini

PhD in progress : Cédric Lachat, Partitionnement et adaptation parallèles de maillages pour des simulations dans les tokamaks, 2009, F. Pellegrini and C. Dobrzynski

9.2.3. Juries

HdR : Stéphane Brull, Université Bordeaux I, R. Abgrall, November 19th, 2012.

HdR : Patrice Kadionik, Contribution à la conception des systèmes numériques embarqués. Application à l'adéquation algorithme-architecture pour la compression vidéo et à l'informatique ubiquitaire, September 5th, François Pellegrini : referee

Olivier Saut, Contributions en optique non-linéaire et en modélisation de la croissance tumorale en vue des applications cliniques, September 23th 2012, Université Bordeaux I, R. Abgrall, jury

HdR, Aswhin Chinnayya, Contribution à l'étude numérique des écoulements diphasiques et compressibles, Université de Rouen, Rémi Abgrall : referee. December 6th, 2012

PhD : Guilherme Cunha (ISAE), Optimisation d'une méthodologie de simulation numérique pour l'Aéroacoustique sur un couplage faible des méthodes d'aérodynamique instationnaire et de propagation acoustique, R. Abgrall, referee. October 18th, 2012

PhD, Steven Diot. Méthodes d'ordre élevé pour la mécanique des fluides compressible, Université de Toulouse, 30 August 2012. R. Abgrall, referee

PhD: Koen Hillewaert, Discontinuous Galerkin schemes for turbulent 3D applications, Université Catholique de Louvain, October 4th, 2012. R. Abgrall, referee.

PhD : Matthieu Lefebvre, Algorithmes sur GPU pour la simulation numérique en mécanique des fluides, François Pellegrini : referee

PhD : François-Henry Rouet, Memory and performance issues in parallel multifrontal factorizations and triangular solutions with sparse right-hand sides, François Pellegrini : jury

PhD : Kurt Sermeus, Multi-dimensional upwind discretization and application to compressible flows, Université Libre de Bruxelles, R. Abgrall, December 12th, 2012, referee

PhD : KunKun Tan, Combining discrete equations method and upwind downwind-controlled splitting for non-reacting and reacting two-fluid computations, Université de Grenoble, December 14th 2012, R. Abgrall, referee

PhD : Dario Isola, An interpolation-free two dimensional conservative ALE scheme over adaptive unstructured grids for rotorcraft aerodynamics, Politechnico de Milano, March 1st, 2012. R. Abgrall, referee.

MdC : Participation of Pietro Marco Congedo in the selection committee for position number 876 (section 60), Université Pierre et Marie Curie.

9.3. Popularization

Pietro Marco Congedo, Maria-Giovanna Rodio and Julie Tryoen participated in the "*Fête de la Science*", concerning flows and renewable energies, Bordeaux, October.
François Pellegrini has many activities related to software law and economic development, which are becoming part of his research activity. Yet, as they do not fit in the scope of the `BACCHUS` EPI, they are presented here:

- Talk entitled "*The case for creation and innovation vs. ACTA*", S&D Hearing "*ACTA: Whose rights does it protect?*", European Parliament, Brussels, April.
- Invited by the students of the ENSAA engineering school to deliver talks at the JOSENSAA open-source conference, Agadir, May.
- Presentation of `Scotch` during the `I-Match` academics-industry meeting organized by Inria Bordeaux Sud-Ouest, Talence, June.
- Participation in the round table "*Open innovation*" at Solutions Linux, Paris, June.
- Invitation to deliver a talk at the seminar on "*Accessibility and Diversity on Internet*" organized by the *Organization Internationale de la Francophonie* in the context of the Internet Governance Forum, Baku, November.
- Talk "*Le droit du numérique : une histoire à préserver*" delivered at the *Colloque pour un Musée de l'informatique et de la société numérique en France*, CNAM, Paris, November (published as [30]).
- Co-organization and co-chair of the colloquium "*Innovation ouverte et innovation libre*" at Conseil Régional d'Aquitaine, as co-president of Aquinetic, Bordeaux, November.
- Conference on the digital revolution at the *Festival du Film d'Histoire de Pessac*, Pessac, November.
- Participation in the colloquium "*Le droit au Libre*" on libre software licenses, organized by the association of barristers of Toulouse, November.

- Three hour training on author's right and software law delivered to about thirty academics and engineers. Training day organized by CNRS, Talence, November.
- Three hour training on software licenses, libre software licenses and interoperability delivered to about forty industry people, mostly from local SMEs. Training day organized by Cap'Tronic, Talence, December.

CAD Team

9. Dissemination

9.1. Teaching - Supervision - Juries

9.1.1. Teaching

Pr. Jean-Claude Paul, Pr. Jun-Hai Yong, Dr. Bin Wang and Dr. Hui Zhang teach at Tsinghua University. Dr. Hui Zhang is the Dean of the Scool of Software Teaching Program.

Master : Pr. Xiaopeng Zhang and Dr. Weiming Dong teach at Graduate University of Chinese Academy of Sciences.

CAGIRE Team

8. Dissemination

8.1. Scientific Animation

The team members have been invited to review for the following journals:

- Journal of Computational Physics [VP]
- International Journal for Numerical Methods in Fluids [PB, VP]
- Computers and FLuids [VP]
- SIAM Journal on Applied Mathematics [VP]
- Shock Waves [VP]
- ESAIM: Mathematical Modelling and Numerical Analysis [VP]
- Mathematics and Computers in Simulation [VP]
- Review for the Engineering Computations [VP]
- Combustion and Flame [PB]
- Journal of Aerospace Engineering [PB]
- Computational Thermal Science [PB]

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

- Licence :

  TP Transferts thermiques, 8h, L1, IUT-GTE-UPPA, Pau, France. [PB]

  Programmation, 50h, L3, ENSGTI-UPPA, France [EF]

  TP Composants, 40h, L3, ENSGTI-UPPA, France [EF]

- Master :

  An introduction to the numerical simulation of reacting flows, 15h, M2, ISAE-SupAéro, Toulouse, France. [PB]

  Machines hydrauliques, 30h, M1, ENSGTI-UPPA, France [TK]

  Machines aérauliques, 30h, M1, ENSGTI-UPPA, France [TK]

  Thermo-économie, 30h M2, ENSGTI-UPPA, France [TK]

  Modélisation des écoulements diphasiques, 30h, M1, ENSGTI-UPPA, France [TK]

  TP systèmes, 50h, M1, ENSGTI-UPPA, France [TK]

  Simulation industrielle, 40h, M1, ENSGTI-UPPA, France [EF]

  Fluides compressibles, 20h, M1, ENSGTI-UPPA, France [EF]

  Combustion industrielle, 30h, M1, ENSGTI-UPPA, France [EF]

  Réseaux de chaleur, 4h, M2, ENSGTI-UPPA, France [EF]

  Géothermie, 4h, M2, ENSGTI-UPPA, France [EF]

  Biomasse, 4h, M2, ENSGTI-UPPA, France [EF]

8.2.2. Juries

+ PhD (PB, Referee) :J. Primus, Détermination de l'impédance acoustique de matériaux absorbants en écoulement par méthode inverse et mesures LDV, Université de Toulouse, 6 December 2012. Thesis advisors : F. Simon and E. Piot.
+ PhD (PB, external examiner) :L. Cheng, Combined PIV/PLIF measurements in a high swirl-fuel injector flowfield, Loughborough University, 19 december 2012. Thesis advisor: A. Spencer.

CALVI Project-Team

9. Dissemination

9.1. Scientific Animation

9.1.1. Invitations at conferences and summer schools

- Michel Mehrenberger gave invited talks at
  - ICOPS 2012, Edinburgh (Scotland, UK), 8-12 July 2012, "Conservative semi-lagrangian schemes on mapped meshes", http://icops2012.lboro.ac.uk/
  - 4th Summer school on numerical modelling for fusion, 8-12 October 2012, IPP, Garching near Munich "High Order Semi-Lagrangian Schemes for the Vlasov equation", http://www.ipp.mpg.de/ippcms/eng/for/veranstaltungen/konferenzen/su_school/
- Sever Hirstoaga gave an invited talk at The 9th AIMS Conference, in the Special Session 79 : "Numerical Methods based on Homogenization and on Two-Scale Convergence", 1-5 July 2012, Orlando.
- Eric Sonnendrücker gave an invited talk on "Numerical Algorithms for Gyrokinetic simulations" at the Workshop on Computational Challenges in Magnetized Plasma, IPAM, UCLA, April 16-20, 2012.
- Jean Roche gave invited talks at
  - Engopt 2012, Rio de Janeiro, Brazil, July 2012, on "Interior Point Methods for Shape Optimization in Electromagnetic Casting"
  - 10th WCCM, Sao Paulo, Brazil, 8-13 July 2012, on "Adaptivity in Shape Optimization with an exterior state equation"

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Philippe Helluy is responsible for the second year of Master CSSI (*Calcul Scientifique et Sécurité Informatique*) of the UFR Mathématique et Informatique, Université de Strasbourg.

Laurent Navoret is responsible for *Master Enseignement - parcours Agrégation* of the UFR Mathématique et Informatique, Université de Strasbourg, since September 2012.

- Nicolas Besse

  Licence : Analyse, 90H, L2, Université de Lorraine Faculté des Sciences et Techniques, France

  Licence : Analyse complexe, 16H, L3, Université de Lorraine Faculté des Sciences et Techniques, France

  Licence : Analyse, 38H, L1, Université de Lorraine Faculté des Sciences et Techniques, France

  Master : Modélisation mathématique et méthodes numeriques pour les plasmas de fusion, 45H, M2-Fusion, Université de Lorraine, France
- Philippe Helluy

  Master: EDP hyperboliques, 30 HETD, M2, Université de Strasbourg, France

  Master: Contrôle Optimal, 30 HETD, M2, Université de Strasbourg, France

  Master: Calcul Scientifique, 30 HETD, M1, Université de Strasbourg, France

Master: Elemental numerical methods, 30 HETD, M1 physique, Université de Strasbourg, France

Master: Recherche Opérationnelle, 30 HETD, école d'ingénieurs ENSIIE, Strasbourg, France.

Doctorat : Modèles mathématiques et numériques de la transition de phase, 30 HETD, M2, Université de Strasbourg, France

- Simon Labrunie

  Licence : Mathématiques générales en DUT génie civil, 55h, L1, Université de Lorraine, France

  Licence : Mathématiques générales en DUT génie civil, 55h, L2, Université de Lorraine, France

- Michel Mehrenberger

  Licence : Optimisation non lineaire, 54h, L3, Université de Strasbourg, France

  Licence : Méthodes d'Analyse Numérique, 39h, L3, ENSIIE (ecole d'ingenieur, antenne de Strasbourg), France

  Licence : Analyse Numérique, 72h, L2, Université de Strasbourg, France

  Licence : Calcul Formel et Simulation Numérique, 18h, L2, Université de Strasbourg, France

  Master : Mathematical methods for physics, 30h, M1, Université de Strasbourg, France

  Master : Spectral Analysis, 30h, M1, Université de Strasbourg, France

  Master: Méthodes numériques pour les EDP, TP, 20h, M1, Université de Strasbourg, France

- Laurent Navoret

  Licence : TD Technique d'Analyse Numérique, 36h eq. TD, L3, Université de Strasbourg, France

  Licence : Introduction numérique aux E.D.P., 43.75h eq. TD, L3, Université de Strasbourg, France

  Master : Modélisation : Option Calcul Scientifique, 72 eq. TD, M2, Université de Strasbourg, France

- Jean R. Roche

  Licence: Mathématiques, 162 h eq. TD, L2, ESSTIN, Université de Lorraine, France.

  Master : Optimisation, 30 h eq. TD, M1, ESSTIN, Université de Lorraine, France.

9.2.2. Supervision

HdR : Michel Mehrenberger, *Inégalités d'Ingham et schémas semi-lagrangiens pour l'équation de Vlasov*, 5 October 2012, Coordinator: Eric Sonnendrücker

PhD in progress : Céline Caldini , *Collisions dans les modèles gyrocinétiques*, Advisor: Mihai Bostan

PhD in progress : Pierre Glanc, *Approximation numérique des équations de Vlasov par des méthodes de "remapping" conservatifs*, Advisors: Nicolas Crouseilles, Emmanuel Frénod, Philippe Helluy and Michel Mehrenberger

PhD in progress : Nhung Pham, *Méthodes fluides généralisées pour les plasmas*, Advisor: Philippe Helluy

PhD in Progress : Michel Massaro, *Résolution numérique de lois de conservation sur architectures multicores*, Advisors: Philippe Helluy, Catherine Mongenet.

PhD in progress : Christophe Steiner, *Etudes de l'opérateur de gyromyenne et de son couplage avec les équations de Vlasov gyrocinétiques*, Advisors: Nicolas Crouseilles and Michel Mehrenberger

PhD in progress : Mathieu Lutz, *Etude théorique et numérique de l'approximation gyrocinétique*, Advisors: Emmanuel Frénod and Eric Sonnendrücker

PhD in progress : Mohamed Ghattassi, *Analyse et Contrôle d'un Four*, Université de Lorraine, Advisor: Jean Roche.

PhD in progress : Takashi Hattori, *Full wave modeling of lower hybrid current drive in tokamaks*, Université de Lorraine, Advisors: Simon Labrunie and Jean Roche.

9.2.3. Juries

Simon Labrunie participated to the following Ph.D. defense committees :

- Jean-Yves Moller, Ph.D. at Université de Lorraine, Title: *Eléments finis courbes et accélération pour le transport de neutrons*, January 2012. Simon Labrunie was co-director together with Richard Sanchez from CEA Saclay.
- Sébastien Cambon, Ph.D. at INSA Toulouse. Title: *Méthodes d'éléments fins d'ordre élevé et d'équations intégrales pour la résolution de problèmes de furtivité radar d'objets à symétrie de révolution*, July 2012.

9.3. Popularization

- October 2012 : Laurent Navoret gave a popularization talk, entitled "La valse relaxante des particules" and about the Landau damping, for the "Fête des sciences 2012" in Strasbourg.
- December 2012 : Philippe Helluy gave a talk entitled: "How to solve PDE on GPU" to high school students at IUFM d'Alsace.

CASTOR Team

7. Dissemination

7.1. Scientific Animation

B. Nkonga, H. Guillard and M. Bilanceri have participated to the CEMRACS 2012 “Numerical methods and algorithms for High performance”. Two CEMRACS projects have been supervised during the research session of this edition of CEMRACS.

7.2. Teaching - Supervision - Juries

7.2.1. Teaching

Master : Afeintou SANGAM, Fondamentals of Analysis, two weeks and half intensive courses, M1, Kwame NKrumah University Of Science and Technology (project leads by France Ambassy at Accra and Universities of GHANA in the framework of Mathematics Doctoral Sessions), GHANA

7.2.2. Supervision

PhD : Audrey Bonnement, Modélisation numérique bi-fluide du plasma de bord des tokamaks : application à ITER, University of Nice-Sophia Antipolis, 03-07-2012, H. Guillard and R. Pasquetti.

PhD : Gael Selig, Équilibre évolutif à frontière libre et diffusion résistive dans un plasma de tokamak, University of Nice-Sophia Antipolis, 20-12-2012, J. Blum.

PhD in progress : Marie Martin,Approximation des équations de la MHD réduite, Since december 1^{st} 2009, B. Nkonga

PhD in progress : Cédric Lachat, Parallel Mesh distribution and Adaptation, Since october 1^{st} 2009, H. Guillard and L. Hascoet

PhD in progress : Jeaniffer-Lissette Vides Higueros, Approximation des écoulements en géométrie toroidale, Since october 1^{st} 2011, B. Nkonga and H. Guillard.

PhD in progress : José Costa, Approximation C^k, Since october 1^{st} 2012, B. Nkonga

PhD in progress : Clément le Touze, Couplage entre modèles diphasiques à « phases séparées » et à « phase dispersée » pour la combustion cryotechnique, Since october 1^{st} 2011, H. Guillard.

PhD in progress : Pierre Cargemel, Déraffinement adaptatif de maillages non-structurés. Since november 5 2012, H. Guillard.

7.2.3. Juries

B. Nkonga was president of the PhD juries of

- Joseph Charles, 26 Avril 2012, Sophia Antipolis/Univ. of Nice. Amélioration des performances de méthodes Galerkin discontinues d’ordre élevé pour la résolution numérique des équations de Maxwell instationnaires sur des maillages simplexes
- Julien Richard, 07 Décembre, CERFACS/Univ. Montpellier 2. Développement d’une chaine de calcul pour les interactions fluide-structure et application aux instabilités aéro-acoustiques d’un moteur à propergol solide.

acted as referee for the defense of

- Gregory Huber August 28 2012 , IUSTI/Aix-Marseille Univ. Modélisation et simulation numérique des interfaces perméables
- Mathias Malandain, January 15 2013, Univ. of Rouen, Simulation massivement parallèle des écoulements turbulents à faible nombre de Mach.

and was member of the jury of :

Elena Collado Morata, 29 Octobre, 2012, CERFACS/Univ. of Toulouse, Impact of the unsteady aerothermal environement on the turbine blades temperature.

H. Guillard acted as referee for the PhD defense of Arnaud Kurst, University of Bordeaux, October 31, 2012

COFFEE Project-Team

8. Dissemination

8.1. Teaching - Supervision - Juries

8.1.1. Teaching

Master : Th. Goudon, Scientific Computing, ENS Paris, France.
Master : F. Berthelin, PDEs and kinetic equations (M2), Nice, France
Master : F. Berthelin & M. Ribot, préparation to agrégation (M2), Nice, France.
Master : Th. Goudon & R. Masson, Mathematical modeling and Scientific Computing for biology (M2), Nice, France.
Master : S. Junca & S. Krell have their teaching duties at IUFM, being in charge of preparation of teachers.
Agrégation : T. Goudon is member of the jury of agrégation, the national competition to hire teachers, in charge of the scientific computing exams.

8.1.2. Supervision

Master &PhD
Master Nice, F. Berthelin, EDO for biological modeling.
Master Nice, S. Junca, Regularizing effect for scalar conservation laws.
Master EPU Nice, T. Goudon & C. Scheid, Simulation of 2D incompressible Euler equations in vortex simulation.
Master ENS Paris, R. Masson & S. Krell, Finite volumes methods for elliptic PDEs
PhD L'Aquila (Italy): M. Twarogowska, Numerical approximation and analysis of mathematical models arising in cells movement, advised by M. Ribot & R. Natalini (defended 02/14/2012).
PhD in progress : Y. Zhang, Modeling and simulation of mass and heat exchanges in nuclear waste storage, starting Sept. 2012, advised by Th. Goudon and R. Masson

8.1.3. Juries

S. Junca : PhD M. Hajjej, "Couches initiales et limites de relaxation aux systèmes d'Euler-Poisson et d'Euler-Maxwell", Clermont-Ferrand, Mars 2012.
Th. Goudon : HDR of A. Gloria, "Propriétés qualitatives et quantitatives en homogénéisation périodique et stochastique", Lille fev. 2012.
Th. Goudon : PhD of I. Guaraldo, "Some analytical results for hyperbolic chemotaxis model on networks", Roma, July 2012 (referee).
Th. Goudon : HDR of R. Turpault, "Modélisation, analyse numérique et simulations de phénomènes complexes pour des systèmes hyperboliques de lois de conservation avec termes sources raides et en électrocardiologie", Nantes, Oct. 2012 (Pdt.)
Th. Goudon : HDR of S. Mancini, "Modèles cinétiques. Applications en volcanologie et neuro-sciences", Orléans, Nov. 2012 (Pdt.).
R, Masson, PhD of D. Chauveheid, "Ecoulements multi-matériaux et multi-physiques: solveur volumes finis eulérien co-localisé avec capture d'interfaces, analyse et simulations", CMLA.

8.2. Popularization

Th. Goudon is in charge for SMAI, the french society for applied and industrial mathematics, of the animation of "2013, Mathematics of Planet Earth", a event supported by UNESCO. In particular he is member of the Steering Committee of the operation "1 jour, 1 brève" which aims at publishing one text a day devoted to the topics of Mathematics of Planet Earth.

R. Masson is involved in the Atelier de Recherche Prospective MathsInTerre, led by D. Bresch: this network has been created in connection to the worldwide event "2013, Mathematics for the Planet Earth"; this project aims at bringing out several key subjects that deserve a specific attention for future researches.

CONCHA Project-Team

8. Dissemination

8.1. Teaching - Supervision - Juries

8.1.1. Teaching

The LMA has proposed a new Master program starting in 2007, which is called MMS (Mathématiques, Modélisation et Simulation) and has a focus on analysis, modeling, and numerical computations in PDEs; Robert Luce and R. Becker are co-responsables of this Master program. The core of this education is formed by lectures in four fields : PDE-theory, mechanics, numerical analysis, and simulation tools.

This master program includes lectures on physical applications, one of the three proposed application fields is CFD; lectures are provided by the members of the project; especially the following lectures have been given:

Simulation numérique 1, Robert Luce and Eric Dubach,

Analyse numérique des EDP, R. Becker and D. Capatina,

Simulation numérique 2, Robert Luce and Eric Dubach,

Méthodes numériques pour les EDP, R. Becker,

Mécanique des fluides, R. Becker,

Simulation numérique 3, P. Puiseux

Mécanique des Fluides et Turbulence, Eric Schall, D. Graebling

DEFI Project-Team

9. Dissemination

9.1. Scientific Animation

- Grègoire Allaire is the President of SMAI (Société de Mathématiques Appliquées et Industrielles).
- Grègoire Allaire is a board member of Institut Henri Poincaré (IHP).
- Grègoire Allaire is the chairman of the Gaspard Monge Program in Optimization (PGMO) at the Jacques Hadamard Mathematical Foundation.
- Grègoire Allaire is a member of the following editorial boards: book series "Mathématiques et Applications" of SMAI and Springer, ESAIM/COCV, Structural and Multidisciplinary Optimization, Discrete and Continuous Dynamical Systems Series, Computational and Applied Mathematics, Mathematical Models and Methods in Applied Sciences (M3AS), Annali dell'Universita di Ferrara.
- Houssem Haddar is a guest editor (jointly with Fioralba Cakoni) of a special issue of Inverse problems on transmission eigenvalues.
- Jing-Rebecca Li is an Associate Editor of the SIAM Journal on Scientific Computing.

9.1.1. Conference organization

- G. Allaire (Chair), H. Haddar and O. Pantz are co-organizers of PICOF 6th edition (Inverse Problems, Control and Shape Optimization), April 2-4 2012.
- H. Haddar is the organizer of the minisymposium “Inverse Problems and Applications” at CANUM, 2012, 21 mai - 25 mai 2012, Superbesse.
- J.-R. Li is a co-organizer of the mini-symposium "Simulation and modeling applied to diffusion magnetic resonance imaging" at the SIAM Computational Science and Engineering Conference Feb 2013.

9.1.2. Conference attendance

- Nicolas Chaulet, "Reconstruction of a perfectly conducting obstacle coated with a thin dielectric layer", PICOF'12, Palaiseau (France), 4-6/04/2012
- Nicolas Chaulet, "A factorization method for support characterization of an obstacle with a generalized impedance boundary condition", IPMS conference, Antalya (Turkey), 21-26/05/2012
- Olivier Pantz, "The dehomogenizaiton method", Seminar University of Sciences of Tunis (November 2012)
- Olivier Pantz, Participation to the kickoff workshop of the ANR "Geometrya", Lyon (October 2012)
- Olivier Pantz, "Numerical Simulation of the Dynamic of Red Blood Cells" Colloquium MAP5, University Paris-Descartes (February 2012)
- Grègoire Allaire, 83rd Annual Meeting of GAMM, Darmstadt (march 2012).
- Grègoire Allaire, Conference Dynacomp, Arcachon (may 2012).
- Grègoire Allaire, Workshop "Exotic Structures and Homogenization", APM12, Saint Petersbourg (july 2012).
- Grègoire Allaire, Conference "variational models and methods for evolution", Levico (september 2012).
- Houssem Haddar, Canum, 2012, 21 mai - 25 mai 2012, Superbesse
- Houssem Haddar, Congrès de MEthodes numériques et MOdélisation ENIT-LAMSIN, Tunis, 13-15 December 2012.

- Dinh Liem Nguyen, International Conference on Inverse Problems and Related Topics 2012, October 21-26, 2012, Southeast University, Nanjing, China.
- Dinh Liem Nguyen, Conference Inverse Days 2012, December 17-20, 2012, University of Jyväskylä, Jyväskylä, Finland.
- Zixian Jiang, Poster at the conference on Inverse Problems, Control and Shape Optimization (PICOF 2012), Ecole Polytechnique, Palaiseau, France, April 2012.
- Zixian Jiang, Talk in the minisymposium *Inverse Problems in Biomedical engineering* at the International Conference on Inverse Problems and Related Topics (ICIP 2012), Southeast University, Nanjing, China, October 2012.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence: Nicolas Chaulet, *Equations différentielles et introduction à l'automatique*, ENSTA, Paris (1st year).

Licence: Nicolas Chaulet, *La méthode des éléments finis*, ENSTA, Paris (2nd year).

Licence: O. Pantz, Tutorial Classes in "Numerical analysis et Optimization", 64h, L3, École Polytechnique.

Licence: H. Haddar, Tutorial Classes in "Numerical analysis et Optimization", 64h, L3, École Polytechnique.

Licence: Grègoire Allaire teaches a semester course on numerical analysis and optimization in the second year (senior undegraduate level). See the web page: http://www.cmap.polytechnique.fr/~allaire/cours_X_annee2.html

Master: O. Pantz, Tutorial Classes in "Structural Optimization" (G. Allaire) 14h, M1, École Polytechnique.

Master: O. Pantz, "Troisième Ateliers de Simulation Numérique" , 24h TD, M1, Univeristy of Ouragla, Algeria, December 2012.

Master: O. Pantz, Tutorial Classes and Courses in FreeFem++, 24h, M1, University Badji Mokhtar Annaba, Algeria, April 2012.

Master: O. Pantz, Project training in Numerical Analysis (1 project - "Shape optimization by the Level-Set Method in 3d"), M1, Ecole Polytechnique.

Master: Grègoire Allaire teaches a course on optimal design of structures in the third year (first year of a Master program). See the web page: http://www.cmap.polytechnique.fr/~allaire/cours_X_majeure.html

Master: Grègoire Allaire teaches together with François Golse a course on transport and diffusion in the third year (first year of a Master program). See the web page: http://www.cmap.polytechnique.fr/~allaire/cours_map567.html

Master: Grègoire Allaire teaches together with François Alouges a course on homogenization in the fourth year (second year of a Master program). See the web page: http://www.cmap.polytechnique.fr/~allaire/homogenization.html

Master: Houssem Haddar teaches together with Antonin Chambolle a course on Mathematics of Inverse Problems (M2, AN&EDP, Paris 6 and Eole Polytechnique).

9.2.2. Supervision

PhD in progress: L. Azem, Fracture and damage: Modeling and Simulation, Olivier Pantz (with Zorgati).

PhD in progress : H. T. Nguyen, Simplified models and inverse problems for diffusion MRI, 2011, Jing-rebecca Li (with Denis Grebenkov and Cyril Poupon).

PhD in progress : D. V. Nguyen, Efficient finite-element method to solve PDE problems in diffusion MRI, 2011, Jing-Rebecca Li (with Denis Grebenkov).

PhD in progress : F. Ouaki, On multi-scale numerical methods for multiphasic transport in porous media, 2010, Grègoire Allaire.

PhD in progress : G. Delgado, Optimal design of the draping of composite materials, 2010, Grégoire Allaire.

PhD in progress : G. Michailidis, On topology optimization with feasibility constraints, 2010, Grégoire Allaire (with F. Jouve)

PhD in progress : Z. Jiang, Eddy current probing of axisymmetric tubes, 2010, Houssem Haddar.

PhD in progress : G. Migliorati, Electrostatic Imaging with uncertain backgrounds, 2010, Houssem Haddar (with F. Nobile)

PhD in progress : L. Audibert, Non-destructive testing of concrete like materials, 2012, Houssem Haddar.

PhD in progress : T. Mercier, data assimilation for temprature estimates of nuclear fuel powerplant, 2012, Houssem Haddar.

PhD in progress: M. Chamaillard, Effective boundary conditions for thin periodic coatings, Ecole Polytechnique, 2011, Houssem Haddar (with P. Joly).

Master: O.Pantz, Internship co-supervisor with G. Allaire and D. Shmitt (EDF) of G. Gourlaouen (INSTN, École des Mines de Nancy) on "The Shape Optimization of a Sodium Fast Reactor Core", M2.

PhD: Y. Boukari, Méthodes innovantes en contrôle non destructif des structures: applications à la détection de fissures, Ecole Polytechnique and ENIT, January 2012, H. Haddar and F. Ben Hassen.

PhD: G. Giorgi, Mathematical tools for microwave mammography and prostate cryosurgery, University of Genova, April 2012, H. Haddar and M. Piana.

PhD: D. Nicolas, Couplage de méthodes d'échantillonnage et de méthodes d'optimisation de forme pour des problèmes de diffraction inverse, Ecole Polytechnique, November 2012, G. Allaire and H. Haddar.

PhD: N. Chaulet, Modèles d'impe´dance ge´ne´ralise´e en diffraction inverse, Ecole Polytechnique, November 2012, L. Bourgeois and H. Haddar.

PhD: D.L. Nguyen, Spectral Methods for Direct and Inverse Scattering from Periodic Structures, Ecole Polytechnique, December 2012, H. Haddar and A. Lechleiter.

HdR: O. Pantz, Quelques problèmes variationnels: Optimisation de forme, contacts et analyse asymptotique, Université Paris Sud, December 2012.

GAMMA3 Project-Team

6. Dissemination

6.1. Teaching - Supervision - Juries

6.1.1. Teaching

Doctorat : F. Alauzet : Vérification des simulations numériques en mécanique des milieux continus, Cours de 2h au Collège de Polytechnique (Paris) avec A. Dervieux

Master (ou équivalent) : F. Alauzet: Simulation numérique en géométries complexes, niveau M1, 36 heures, École Centrale Paris

Master (ou équivalent) : A. Loseille : CAO et maillage, 35 heures, niveau M2, UPEC (Université Paris-Est Créteil), France

Licence (ou équivalent) : A. Loseille : Introduction à la discrétisation des équations aux dérivées partielles, 12 heures, niveau L3, ENSTA, France

Master (ou équivalent) : A. Loseille : Programmation pour la simulation numérique, 30 heures, niveau M1, ENSTA, France

6.1.2. Supervision

HdR : Frédéric Alauzet, Contributions aux méthodes numériques pour l'adaptation de maillage en Mécanique des Fluides, Université Paris 6, 28 Juin 2012

IPSO Project-Team

7. Dissemination

7.1. Scientific Animation

7.1.1. Editorial activities

- P. Chartier is member of the editorial board of “M2AN"
- P. Chartier is member of the editorial board of “ESAIM Proceedings"
- P. Chartier is member of the editorial board of “Mathematical Analysis"
- N. Crouseilles is member of the editorial board of "International Journal of Analysis" http://www.hindawi.com/journals/analysis/
- A. Debussche is member of the editorial board of “SINUM"
- A. Debussche is member of the editorial board of “Differential and Integral Equations"
- A. Debussche is a member of the editorial board of “Potential Analysis"
- A. Debussche is a member of the editorial board of “ESAIM Proceeding"
- A. Debussche is a member of the editorial board of the collection “Mathématiques & Applications" edited by Springer
- A. Debussche is the editor in chief of “Stochastic Partial Differential Equations: Analysis and Conputations"
- M. Lemou is associate editor of “Annales de la faculté de Toulouse"

7.1.2. Conference and workshop organization

- P. Chartier, A. Debussche and E. Faou were members of the programm committee of DD21: 21th International Conference on Domain Decomposition Methods, 25-29 June 2012, Rennes, France.
- N. Crouseilles was member of the organization committee of the workshop WASPs 20-26 may 2012 http://www.math.univ-toulouse.fr/~cnegules/WAPs2012.html
- A. Debussche organizes the semester "Perspectives in Analysis and Probability" to be held in Rennes in 2013. Among others, there will be two international conferences, 3 workshops and 1 summer school.

7.1.3. Administrative activities

- P. Chartier is member of the bureau of the Comité des Projets at Inria-Rennes.
- M. Lemou is partly in charge of the Master 2
- M. Lemou is member of the scientific committee of the Lebesgue Center (Labex)
- F. Méhats is member of the CNU, Section 26.
- F. Méhats is the head of the numerical analysis department of IRMAR.
- A. Debussche is member of the board of directors of the ENS Cachan.
- A. Debussche is member of the Executive Board of the Lebesgue Center, Labex funded by the french government.

7.1.4. Talks in seminars and conferences, mini-courses

- P. Chartier was plenary speaker at the Tenth International Conference of Numerical Analysis and Applied Mathematics (ICNAAM 2012) in honor of Gerhard Wanner, Greece, September 19-25, 2012.

- P. Chartier was plenary speaker at the Workshop INNOVATIVE TIME INTEGRATION, Innsbruck, Austria, May 13-16, 2012.
- E. Faou was plenary speaker at the conference NUMDIFF13 (september 2012), Halle, Germany.
- E. Faou gave a lecture at the Winter School “Dynamics and PDEs", Saint-Etienne de Tinée.
- G. Vilmart was keynote speaker at the Special session on "Algebraic structures in numerical analysis of differential equations", Universitad Jaume I (IMAC), Castellon (Spain), May 2012.
- A. Debussche was plenary speaker at the conference “Recent Developments in Stochastic Analysis", EPFL Lausanne, february 2012.
- A. Debussche was plenary speaker at the conference “Stochastic Analysis and Stochastic PDEs ", University of Warwick, april 2012
- A. Debussche was plenary speaker at the conference “NASPDE12 - Numerical Analysis of Stochastic PDEs", University of Warwick, june 2012
- A. Debussche was plenary speaker at the conference “Stochastic Partial Differential Equations (SPDEs) Follow-up Meeting " in Cambridge, september 2012.

7.2. Teaching - Supervision - Juries

7.2.1. Teaching

Licence : P. Chartier, “Equations différentielles", 36, L3, ENS Cachan-Bruz

Master : N. Crouseilles, "Numerical methods for kinetic equations", 18H, M2, University of Rennes 1

Master: E. Faou, “Modélisation et analyse numérique des EDPs", ENS Paris, in collaboration with D. Lannes

Master 1 and 2: M. Lemou, “Equations elliptiques" and “Equations hyperboliques"

7.2.2. Supervision

PhD : Charles-Edouard Bréhier, “Analyse numérique d’EDP stochastiques hautement oscillantes", defended the 27th of november 2012 (supervised by A. Debussche et E. Faou).

7.2.3. Juries

- Nicolas Crouseilles: member of the PhD-jury of A. Crestetto, 4 october, 2012 (Strasbourg).
- A. Debussche was member of the jury for Yohann Offret (PhD, Rennes, juin 2012), Florent Barret (Hdr, Ecole Polytechnique, juillet 2012), Maxime Gazeau (PhD, Ecole Polytechnique, octobre 2012), Bruno Saussereau (Hdr, Besancon, novembre 2012)
- M. Lemou was member of the jury for E. Franck (PhD, Paris 6) and S. Soulaiman (PhD, IRMAR).

7.3. Popularization

S. Fiorelli-Vilmart and G. Vilmart, Les planètes tournent-elles rond?, submitted for publication in “Interstices" Theme 2012-2013 “Invariants et similitudes" of TIPE in preparatory classes.

MC2 Project-Team

9. Dissemination

9.1. Scientific Animation

Thierry Colin is elected as a member of the national committee of the French Universities (CNU). It is a national structure that has in charge a peer review of the carriers of mathematicians in France.

Charles-Henri Bruneau is member of the executive board of the international conferences on CFD. Selection of the 270 abstracts recieved for the next conference in Hawaii july 2012.

Angelo Iollo is managing the national ANR research project Carpeinter.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

All Professors and Associate Professors teach 192 hours per year.

Licence : Modélisation et calcul scientifique, 32H, L2, Université Bordeaux 1, France (Michel Bergmann)

Licence : Initiation au langage de programmation Fortran 90, 28H, ENSEEIRB-MATMECA, France (Michel Bergmann)

Master : approximation des EDP 2, 28h, M1, Université Bordeaux 1, France (Michel Bergmann)

Master : electrical modelling of biological cells, 32H, M2, Université Bordeaux 1, France (Clair Poignard)

9.2.2. Supervision

PhD & HdR :

HdR: O. Saut, Contributions en optique non-linéaire et en modélisation de la croissance tumorale en vue des applications cliniques, Université Sciences et Technologies - Bordeaux I, September 2012

M. Cisternino, A parallel second order Cartesian method for elliptic interface problems and its application to tumor growth model, Université Sciences et Technologies - Bordeaux I and Politecnico di Torino, April 2012

PhD: Y. Gorsse, Méthode cartésienne pour les fluides compressibles et l'élasticité non-linéaire autour d'obstacles, November 2012

J. Hovnanian, Modélisation, Simulation et contrôle d'écoulement autour d'obstacle déformables, December 2012

PhD: V. Huber, Numerical modelling of complex bifluid flows, September 2012

J. Pinilla, , Modélisation et simulation à l'échelle du pore de la récupération assistée des hydrocarbures par injection de polymères, December 2012

PhD in progress : F. Cornelis is a medical doctor of the Institut Bergonié. He is a radiologist practicing CT-Scans, MRI but also local mini-invasive treatments (interventional radiology). He spends one day a week to prepare a PhD on the modelling aspects of his work. started 2010

PhD in progress : X. Jin, Etude et conception d'une éolienne, started 1st May 2011, supervisors : Angelo Iollo and Michel Bergmann

PhD in progress : M. Leguebe, Electroporation modelling at the cell scale, started 1st october 2011, supervisors : Thierry Colin and Clair Poignard

PhD in progress : M. Lattige, (co-director G. Gallice, CEA CESTA). Numerical modeling of ablation. started october 2010

PhD in progress, started October 2011: F. Bernard, V. Pianet

PhD in progress, started October 2012: A. De Bauer, J. Jouganous, G. Lefevre, H. Ung.

MICMAC Project-Team

8. Dissemination

8.1. Animation of the scientific community

E. Cancès

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

E. Cancès has organized or co-organized

- a workshop on the mathematics and numerical analysis of electronic structure models, Beijing, China, June 2012,
- a worskhop on quantum and atomistic modeling of materials defects, IPAM-UCLA, Los Angeles, USA, October 2012.

I. Dabo, V. Ehrlacher and G. Stoltz have co-organized a CFCAM meeting on numerical and mathematical problems for solar cell devices, in Paris, France, 5 september 2012.

C. Le Bris is co-Editor-in-chief (with A.T. Patera, MIT) (2005-) of Mathematical Modeling and Numerical Analysis. He is editor-in-chief of Applied Mathematics Research Express (2003-). He is a member of the editorial boards of Archive for Rational Mechanics and Analysis (2004-), COCV (Control, Optimization and Calculus of Variations) (2003-), Mathematics in Action (2008-), Networks and Heterogeneous Media (2005-), Nonlinearity (2005-), Journal de Mathématiques Pures et Appliquées (2009-). He is a member of the editorial board of the monograph series Mathématiques & Applications, Series, Springer (2008-), and Modeling, Simulations and Applications, Series, Springer (2009-).

C. Le Bris is a member of

- the scientific board of ENPC, 2008- (nominated as representative of the research scholars),
- the “Comité d’experts” for the “Fondation de Recherche pour l’Aéronautique et l’Espace”,
- the “Comité d’animation du domaine thématique Mathématiques appliquées, calcul et simulation” at Inria,
- 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,
- Conseil de perfectionnement du Master de Mathématiques de l’Université Pierre et Marie Curie.

C. Le Bris has held a position of Visiting Professor at the University of Chicago, October-November 2012.

F. Legoll is a member of the editorial board of SIAM MMS (2012-) and of ESAIM Proc (2012-).

F. Legoll has co-organized with B. Kraczek, R. Jones and K. Mandadapu a mini-symposium on "Atomistic basis of thermal processes in driven systems" at the 22nd International Workshop on Computational Mechanics of Materials (IWCMM XXII), Baltimore, Sept. 24-26 2012.

T. Lelièvre is an Ordway visiting professor at the University of Minnesota for the academic year 2012-2013.

T. Lelièvre has co-organized a CECAM workshop "Free energy calculations: From theory to applications" at the Ecole des Ponts, June 4th-8th 2012.

F. Nier is a member of the scientific committee of

- the workshop “Mathematics for semiconductor heterostructure 2012” WIAS-Berlin, September 2012,
- the CNRS-GDR “Dynamique Quantique” led by S. de Bièvre.

G. Stoltz has co-organized the workshop “Nonequilibrium Statistical Mechanics: Mathematical Understanding and Numerical Simulation” held at BIRS, Banff, Canada, November 12-16, 2012.

I. Dabo, V. Ehrlacher and G. Stoltz have co-organized a CFCAM discussion day on “Numerical methods and mathematical approaches for solar devices” in Inria Paris, September 5th, 2012.

V. Ehrlacher and T. Lelièvre have co-organized a thematic minisymposium on greedy algorithms for high-dimensional problems at AIMS 2012, Orlando, USA, July 2012.

8.2. Teaching - Supervision

The members of the team have taught the following courses:

- Licence: Analyse, 27h, L1, Université de Cergy Pontoise, France (S. Lahbabi)
- Licence: Analyse, 36h, L3, Ecole des Ponts, France (E. Cancès, F. Legoll, G. Stoltz, M. Rousset)
- Licence: Calcul Scientifique, 30h, L3, Ecole des Ponts ParisTech, France (M. Dobson, S. Boyaval, G. Stoltz)
- Licence: Formation au logiciel scientifique SCILAB, 12h, L3, Ecole des Ponts ParisTech, France (D. Benoit),
- Licence: Tutorat de Maths, 9h, L3, Ecole des Ponts ParisTech, France (D. Benoit),
- Licence: Probability, 42h, L3, Ecole des Ponts, France (M. Rousset).
- Licence: Projets de physique, 20h, L3, Ecole des Ponts, France (I. Dabo, G. Stoltz)
- Licence: Formation aux logiciels scientifiques, 12h, L3, Ecole des Ponts, France (I. Dabo)
- Master: Introduction au calcul Scientifique, 12h, M1, Ecole des Mines ParisTech, France (D. Benoit, W. Minvielle, G. Stoltz)
- Master: Analyse Numérique et Optimisation, 56h, M1, Ecole Polytechnique, France (E. Cancès)
- Master: Méthodes variationnelles en mécanique quantique, 12h, M2, University Paris 6, France (E. Cancès)
- Master: Mathématiques des modèles multiéchelles, 39h, M1, Ecole des Ponts ParisTech, France (F. Legoll)
- Master: Problèmes multi-échelles, 24h, M2, Université Paris 6, France (F. Legoll)
- Master: Analyse spectrale, 39h, M1, Ecole des Ponts, France (G. Stoltz)
- Master: Spectral theory of Schrodinger operators, 30h, M2, Université de Marne-la-Vallée, France (G. Stoltz)
- Master: Méthodes déterministes en mathématiques financières, 42h, M2, Ecole des Ponts ParisTech (T. Lelièvre).
- Master: Modéliser Programmer Simuler, 28 h, M1, Cours Ecole des Ponts ParisTech (T. Lelièvre).
- Master: Méthodes numériques probabilistes, 36 h, M2 Mathématiques et Applications, Université Pierre et Marie Curie (T. Lelièvre).
- Master: Mathématiques appliquées, 18h, University Lille 1, France (M. Rousset).
- Master: Simulation numérique en science des matériaux, 18h, M1, Ecole des Ponts, France (I. Dabo, M. Vandamme)
- Doctorat: Introduction à l’informatique scientifique, 24h, Université Paris-Est, France (I. Dabo)

F. Legoll has supervised the internship of William Minvielle (Paris 6, Master 2) from March 1st to July 31st, 2012.

The following PhD & Habilitation were defended:

- PhD: V. Ehrlacher, Some mathematical and numerical problems in quantum mechanics and uncertainty quantification, Université Paris-Est, Ecole des Ponts ParisTech, supervised by E. Cancès and T. Lelièvre
- HdR: G. Stoltz, Molecular Simulation: Nonequilibrium and Dynamical Problem, Université Paris-Est, June 18th, 2012,
- PhD: F. Thomines, Méthodes mathématiques et techniques numériques de changement d'échelle : application aux matériaux aléatoires, Université Paris-Est, Ecole des Ponts ParisTech, 22 nov. 2012, supervised by C. Le Bris.

The following PhDs are in progress:

- PhD in progress: H. Alrachid, Méthodes numériques en simulation moléculaire, Université Paris-Est, Ecole des Ponts ParisTech, started october 1st, 2012, supervised by T. Lelièvre
- PhD in progress: D. Benoit, Méthodes numériques pour la simulation des fluides non-Newtoniens, Université Paris-Est, Ecole des Ponts ParisTech, started october 1st, 2010, supervised by C. Le Bris and T. Lelièvre
- PhD in progress: D. Gontier, started September 1st, 2012, supervised by E. Cancès
- PhD in progress: S. Lahbabi, Mathematical study of quantum crystals with random defects, University of Cergy-Pontoise, started september 1st 2010, supervised by E. Cancès and M. Lewin
- PhD in progress: W. Minvielle, Méthodes numériques pour les matériaux, Université Paris-Est, Ecole des Ponts ParisTech, started october 1st, 2012, supervised by C. Le Bris and F. Legoll
- PhD in progress: N. Mourad, A mathematical and numerical analysis of the pseudopotential method, Université Paris-Est, Ecole des Ponts ParisTech and Lebanese CNRS, started September 1st, 2011, supervised by E. Cancès, A. Kashmar and A. Mourad

8.3. Conference participation

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

- D. Benoit, International Workshop on Numerical Methods for Non-Newtonian Flows, Blois (France), March 2012,
- D. Benoit, Congrès CANUM 2012, Superbesse (France), May 2012,
- D. Benoit, Multiscale Materials Modeling (MMM) conference 2012, Singapour (Singapour), October 2012
- D. Benoit, Colloque Modélisation numérique des mélanges grains-fluides, Montpellier (France), October 2012
- I. Dabo, Workshop on Corrective Approaches to DFT for Strongly-correlated Systems, CECAM, EPFL, Lausanne, June 2012
- I. Dabo, Young Engineers and Scientists Symposium, University of California, Berkeley, March 2012
- I. Dabo, CECAM Meeting on Electron Correlation, Ecole Polytechnique, Palaiseau, December 2012
- I. Dabo, Energy from the Sun: Computational Chemists and Physicists Take Up the Challenge, CECAM Conference, Cagliari, September 2012
- I. Dabo, PRACE F2F Workshop, CEA Saclay, June 2012

- I. Dabo, 2nd TYC Energy Materials Workshop, Thomas Young Centre, King's College, London, June 2012
- I. Dabo, American Physical Society Meeting, Boston, March 2012
- E. Cancès, Mathematics meets Chemistry workshop, Erlangen, Germany, March 2012,
- E. Cancès, AIMS 2012, Orlando, USA, July 2012,
- E. Cancès, ICMP 2012, Aalborg, Denmark, August 2012,
- E. Cancès, IPAM workshop, Los Angeles, USA, October 2012
- E. Cancès, weekly seminar of the mathematics department, Université d'Orsay, January 2012,
- E. Cancès, weekly seminar of the mathematics department, Berkeley University, USA, January 2012,
- E. Cancès, working group on numerical methods, Université Paris 6, January 2012,
- E. Cancès, weekly seminar of the mathematics department, ENSTA, March 2012,
- E. Cancès, K. Burke's group meeting, chemistry department, Irvine University, USA, October 2012,
- E. Cancès, NAS group meeting, physics department, Louvain-la-Neuve, Belgium, November 2012,
- V. Ehrlacher, SIAM Conference on Uncertainty Quantification, Raleigh, USA, April 2012.
- V. Ehrlacher, workshop on Mathematical and Numerical Analysis of Electronic Structure Models, Beijing, China, June 2012.
- V. Ehrlacher, 9th AIMS Conference on Dynamical Systems,Differential Equations and Applications, Orlando, USA, July 2012.
- V. Ehrlacher, Séminaire d'Analyse numérique - Equations aux dérivées partielles du Laboratoire Paul Painlevé, Lille, France, Mars 2012.
- V. Ehrlacher, Groupe de travail EDP et analyse numérique LAMA-CERMICS, Marne-la-Vallée, France, May 2012.
- V. Ehrlacher, Séminaire des thésards du laboratoire AGM, Cergy, France, May 2012.
- V. Ehrlacher, IPAM MD2012 Seminar Series, Los Angeles, USA, September 2012.
- V. Ehrlacher, Applied Mathematics/PDE Seminars of University of California of Santa Barbara, Santa Barbara, USA, November 2012.
- V. Ehrlacher, IPAM Workshop IV: Computational Methods for Multiscale Modeling of Materials Defects, Los Angeles, USA, December 2012.
- S. Lahbabi, Weekly seminar of the mathematics department, University of Cergy Pontoise, November 2012,
- C. Le Bris, plenary lecture, 60-th annual SIAM meeting, July 2012, Minneapolis, USA.
- C. Le Bris, Workshop Inhomogeneous Random Systems IRS2012, Institut Henri Poincaré (Paris), January 2012.
- C. Le Bris, International conference on PDEs, Shanghai, June 2012
- C. Le Bris, ICMS workshop Edinburgh, June 2012.
- C. Le Bris, ACMAC workshop on Image and waves in complex media, June 2012, Heraklion, Crete.
- C. Le Bris, Journées MMCS, Université de Lyon, September 2012.
- C. Le Bris, keynote lecturer, 2012 Woudschoten Conference, October, 2012, Zeist, The Netherlands.
- C. Le Bris, IPAM program on " Materials Defects: Mathematics, Computation, and Engineering", December 2012.
- C. Le Bris, Mathematics Seminar, Freie Universität Berlin, May 2012.
- C. Le Bris, Scientific and statistical computing seminar University of Chicago, October 2012.

- F. Legoll, workshop on “Mathematical theory and computational methods for multiscale problems”, Singapore, January 2012,
- F. Legoll, American Physical Society meeting, Boston, February 2012,
- F. Legoll, Workshop “Mathematics meets Chemistry and Physics”, Erlangen, March 2012,
- F. Legoll, CECAM workshop on “Free energy calculations: From theory to applications”, Paris, June 2012,
- F. Legoll, AIMS conference, Orlando, July 2012,
- F. Legoll, WCCM conference, Sao Paulo, July 2012,
- F. Legoll, ECCOMAS conference, Wien, September 2012,
- F. Legoll, NumDiff 13 Conference, Halle, September 2012,
- F. Legoll, 22nd Int. Workshop on Computational Mechanics of Materials, Baltimore, September 2012,
- F. Legoll, Kickoff meeting of the “Laboratoire International Associé Nancy/UIUC”, Nancy, November 2012,
- F. Legoll, Workshop on “Nonequilibrium Statistical Mechanics”, Banff, November 2012,
- F. Legoll, séminaire du groupe de travail Homogénéisation et Echelles Multiples, Paris 6, November 2012,
- F. Legoll, Workshop on “Computational Methods for Multiscale Modeling of Materials Defects”, IPAM Los Angeles, December 2012,
- F. Legoll, Lake Arrowhead culminating workshop, IPAM Los Angeles, December 2012,
- T. Lelièvre, Workshop on Multiscale Modeling, Simulation, Analysis and Application, Singapore, January 2012.
- T. Lelièvre, Workshop on Interplay of Analysis and Probability in Physics, Oberwolfach, January 2012.
- T.Lelièvre, Séminaire de mathématiques, Université de Marne-la-Vallée, January 2012.
- T. Lelièvre, Séminaire du MAPMO, Orléans, February 2012.
- T. Lelièvre, Workshop BEMOD12 “Beyond Molecular Dynamics: Long Time Atomic-Scale Simulations”, MPIPKS, Dresden, March 2012.
- T. Lelièvre, Analysis seminar, MPI Leipzig, April 2012.
- T. Lelièvre, Arbeitsbereich Numerik Mathematisches Institut seminar, Uni Tuebingen, May 2012.
- T. Lelièvre, plenary speaker at the CANUM conference, Superbesse, May 2012.
- T. Lelièvre, Workshop “Computation of transition trajectories and rare events in non-equilibrium systems”, ENS Lyon, June 2012.
- T. Lelièvre, Journées ERGONUM “Analyse probabiliste des systèmes en temps long”, Inria Sophia-Antipolis, June 2012.
- T. Lelièvre, AIMS conference, Orlando, July 2012.
- T. Lelièvre, plenary speaker at the EVOLVE 2012 conference, Mexico, August 2012.
- T. Lelièvre, Workshop “Modelling the Dynamics of Complex Molecular Systems”, Lorentz Center, Leiden, August 2012.
- T. Lelièvre, Tutorial "Materials Defects", IPAM, Los Angeles, September 2012,
- T. Lelièvre, Workshop "Quantum and Atomistic Modeling of Materials Defects", IPAM, Los Angeles, October 2012,
- T. Lelièvre, Workshop “Nonequilibrium Statistical Mechanics: Mathematical Understanding and numerical Simulation” BIRS, Banff, Canada, November 2012.

- F. Nier: Séminaire Univ. Nantes, January 2012.
- F. Nier: Invitation for one week in TU-Universität Braunschweig (Germany) February 2012
- F. Nier: Séminaire Univ. Bordeaux, March 2012.
- F. Nier: Analytic torsion and its applications, Conference organized by J.M. Bismut and W. Müller, Univ. Paris 11, June 2012.
- F. Nier: Invitation for three weeks in WIAS-Berlin (Germany), September 2012
- F. Nier: Workshop "Mathematics for Semiconductor Heterostructures: Modeling, Analysis, and Numerics", WIAS-Berlin (Germany), organized by K. Gaertner, A. Glitzky, H.C. Kaiser, and F. Nier, September 2012.
- F. Nier: Lectures on Semi-classical analysis, organized by S. Fujiie and T. Watanabe, Ritsumeikan University (Japan), October 2012.
- F. Nier: "Workshop on Spectral Analysis, Stability and Bifurcations in Modern Nonlinear Physical Systems", organized by O. Kirillov and Y. Fukumoto, BIRS Banff (Canada), November 2012.
- F. Nier: Séminaire de Probabilités, Univ. Rennes 1 (France), November 2012.
- F. Nier: Paris-London seminar, Inst. Henri Poincaré, Paris (FRANCE), December 2012
- M. Rousset, CECAM Workshop “Free energy calculations: From theory to applications”, Marne-la-Vallée, June 2012,
- M. Rousset, Workshop “Mathematical and Numerical Analysis of Electronic Structure Models”, Beijing, China, June 2012,
- M. Rousset, Evolve Conference, Mexico City, Mexico, August 2012.
- M. Rousset, BIRS Workshop “Nonequilibrium Statistical Mechanics: Mathematical Understanding and numerical Simulation”, Banff, Canada, November 2012.
- G. Stoltz, Workshop "Quantum and Atomistic Modeling of Materials Defects", IPAM, Los Angeles, October 2012,
- G. Stoltz, Workshop “Mathematical and Numerical Analysis of Electronic Structure Models”, Beijing, China, June 2012,
- G. Stoltz, CECAM workshop “Free energy calculations: From theory to applications”, Marne-la-Vallée, June 2012,
- G. Stoltz, seminar at Collège de France, June 2012,
- G. Stoltz, seminar at University of Edinburgh, February 2012,

In addition to the above, some members of the team have been invited for stays in institutions abroad:

- E. Cancès, Chinese Academy of Sciences, Beijing, China, April 2012.
- E. Cancès, IPAM-UCLA, Los Angeles, USA, October 2012,
- F. Legoll, IPAM UCLA (program on “Materials Defects: Mathematics, Computation, and Engineering”), Los Angeles, USA, December, 2012.
- F. Nier: Invitation for one week in Tokyo Universtity (Japan), November, 2012.

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

- E. Cancès, Lectures (6h) on spectral theory for electronic structure modeling, Chinese Academy of Sciences, Beijing, China, April 2012,
- E. Cancès, Lectures (2h) on numerical methods for Density Functional Theory, Ecole des Houches, June 2012,
- C. Le Bris, Lectures on Stochastic homogenization, Series of 90-minute lectures, Summer course on homogenization, Chicago, June 18-29, 2012.
- C. Le Bris, Graduate course, ’Mathematical introduction to complex fluids modeling’, The University of Chicago, 24 hours, October-November 2012.
- F. Nier, Lectures for phD students and researchers about "Semiclassical analysis and mean field dynamics", held in CERMICS-ENPC, 5x2 hours, April-May 2012.

Members of the project-team have presented posters in the following events:

- V. Ehrlacher, IPAM Workshop I: Quantum and Atomistic Modeling of Materials Defects, Los Angeles, USA, October 2012.
- W. Minvielle, IPAM Workshop IV: Quantum and Atomistic Modeling of Materials Defects, Los Angeles, USA, December 2012.

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

- V. Ehrlacher, IPAM Materials Defects: Tutorials, Los Angeles, USA, September 2012.
- V. Ehrlacher, IPAM Workshop II: Atomistic and Mesoscale Modeling of Materials Defects, Los Angeles, USA, September 2012.
- V. Ehrlacher, IPAM Workshop III: Mesoscale and Continuum Scale Modeling of Materials Defects, Los Angeles, USA, September 2012.
- S. Lahbabi, 4th meeting of the GDR quantum dynamics, Toulouse, France, February 2012
- S. Lahbabi, Spectral days 212, Munich, Germany, April 2012
- S. Lahbabi, Summer school: Ab inition simulations in condensed matter, Les Houches, France, June 2012
- W. Minvielle, Summer school on “Recent advances in the Theory of Homogenization”, Chicago, June 2012,

NACHOS Project-Team

9. Dissemination

9.1. Teaching - Supervision - Juries

9.1.1. Teaching

Victorita Dolean, *Scilab*, MAM3, 24 h, Polytech Nice.

Victorita Dolean, *Partial differential equations*, MAM4, 66 h, Polytech Nice.

Victorita Dolean, *Computational electromagnetics*, MAM5, 40 h, Polytech Nice.

Victorita Dolean, *Numerical analysis*, L2, 30 h, University of Nice-Sophia Antipolis.

Victorita Dolean, *Mathematics and statistics*, M1 Erasmus Mundus EuroAquae, 34 h, University of Nice-Sophia Antipolis.

Claire Scheid and Stéphane Lanteri, *Introduction to scientific computing*, M2 Erasmus Mundus MathMods, 30 h, University of Nice-Sophia Antipolis.

Claire Scheid, *Practical works on differential calculus*, 26 h, L2, University of Nice-Sophia Antipolis.

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

Stéphane Descombes, *Analyse numérique et applications en finances*, M2, 30 h, University of Nice-Sophia Antipolis.

9.1.2. Supervision

PhD in progress : Mohamed El Bouajaji, *Optimized Schwarz algorithms for the time harmonic Maxwell equations discretized by discontinuous Galerkin methods*, University of Nice-Sophia Antipolis, January 2012, Victorita Dolean and Stéphane Lanteri.

PhD Joseph Charles, *Arbitrarily high-order discontinuous Galerkin methods on simplicial meshes for time domain electromagnetics*, University of Nice-Sophia Antipolis, April 2012, Stéphane Lanteri.

PhD in progress : Clément Durochat, *Discontinuous Galerkin methods on hybrid meshes for time domain electromagnetics*, University of Nice-Sophia Antipolis, October 2009, Stéphane Lanteri.

PhD in progress : Caroline Girard, *Numerical modeling of the electromagnetic susceptibility of innovative planar circuits*, October 2011, Stéphane Lanteri, Ronan Perrussel and Nathalie Raveu (Laplace Laboratory, INP/ENSEEIHT/UPS, Toulouse).

PhD in progress : Ludovic Moya, *Numerical modeling of electromagnetic wave propagation in biological tissues*, University of Nice-Sophia Antipolis, October 2010, Stéphane Descombes and Stéphane Lanteri.

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 : 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 in progress : Jonathan Viquerat, *Discontinuous Galerkin time domain methods for nanophotonics*, October 2012, Stéphane Lanteri and Claire Scheid.

NANO-D Team

8. Dissemination

8.1. Teaching - Supervision

8.1.1. Teaching

Licence : Stephane Redon, “Introduction to computer science”, INF311 and INF321, 80h, Ecole Polytechnique, Paris, France

8.1.2. Supervision

PhD : Svetlana Artemova, Adaptive Algorithms for molecular simulation, Grenoble University, May 30, 2012, Stephane Redon

PhD : Mael Bosson, Adaptive algorithms for computational chemistry and interactive modeling, Grenoble University, October 19, 2012, Brigitte Bidegaray and Stephane Redon

PhD in progress : Petr Popov, Computational methods for protein structure prediction, November 2011, Sergei Grudinin

8.2. Participation to conferences, seminars

- S. Grudinin and P. Popov attended "Journees du GdR BiMGdR Bim", Paris (January 20 2012).
- S. Grudinin and P. Popov participated in a workshop "Exploring Protein Interactions through Theory and Experiments", Lausanne (September 24-26 2012).
- S. Grudinin gave a talk titled "Fast Fitting of Atomic Structures into Cryo-EM Density Maps Using Hermite Orthogonal Functions" in a workshop "Computational Challenges in Structural Biology", Strasbourg (November 14-15 2012).
- P. Popov participated in a workshop "Computational Challenges in Structural Biology", Strasbourg (November 14-15 2012).

OPALE Project-Team

9. Dissemination

9.1. Scientific Animation

- P. Goatin is member of the Organizing Committee of the 14th International Conference on Hyperbolic Problems: Theory, Numerics and Applications (HYP2012). Padova (IT). June 2012. http://www.hyp2012.eu/
- T. Nguyen is member of the PRACE expert pool since November 2012 (Partnership for Advanced Computing in Europe)
- T. Nguyen is member of the Program Committee for the 9th Intl. Conf. in Cooperative Design, Visualization and Engineering (CDVE2012). Osaka (JP). September 2012.
- T. Nguyen is member of the Program Committee for the 8th Intl. Conf. on Networking, Grids and Virtualization (CLOUD COMPUTING2012). Nice (FR). July 2012. http://www.iaria.org/conferences2012/CLOUDCOMPUTING12.html
- T. Nguyen is Advisory Chair and member of the Program Committee for the 8th Intl. Conf. on Cloud Computing and Services (ICNS2012). Saint-Maarten (NL). March 2012. http://www.iaria.org/conferences2012/ICNS12.html
- T. Nguyen is member of the Program Committee for the 1st Intl. Conf. on Smart Grids and Green IT Systems (SMARTGREENS2012). Porto (PT). April 2012. http://www.smartgreens.org/CallForPapers.aspx
- T. Nguyen is member of the Program Committee for the 2nd International Conference on Cloud and Green Computing (CGC2012), Xiangtan (China), November 2012. http://kpnm.hnust.cn/confs/cgc2012
- T. Nguyen is member of the Program Committee of the 3rd Intl. Conf. on Parallel, Distributed, Grid and Cloud Computing for Engineering. Pécs, Hungary, March 2013. http://www.civil-comp.com/conf/pareng2013.htm
- T. Nguyen is member of the Editorial Board of the Intl. Journal on Advances in Intelligent Systems (IARIA Eds.)
- T. Nguyen is member of the Editorial Board of the Intl. Journal on Advances in Software (IARIA Eds.)

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence: Introduction to Numerical Analysis, 71,5 hrs, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis (J.-A. Désidéri, A. Zerbinati).

Licence: Numerical Methods I, 19.5 hrs, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis (J.-A. Désidéri).

Licence: Solid Mechanics (statics, kinematics, dynamics, energetics), 45.5 hrs, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis (F. Z. Oujebbour).

Licence: Linear Systems, 39 hrs, L3, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis (R. Duvigneau).

Licence: Partial Differential Equations, 36 hrs, L3, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis (R. Duvigneau).

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

Master: Multidisciplinary Optimization, 22.5 hrs, joint ISAE ("Complex Systems") and M2 (Mathematics), Toulouse (J.-A. Désidéri, R. Duvigneau).

Master: Conservation laws and traffic flow models, 32 hrs, M2, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis (P. Goatin).

9.2.2. Supervision

PhD & HdR :

PhD : Imane Ghazlane, *Optimisation aérodynamique et structurale de la voilure d'un avion de transport avec la méthode adjointe*, University of Nice Sophia Antipolis, December 2012, supervisors: J. A. Desideri and Gérald Carrier (ONERA/DAAP).

PhD : Samira El Moumen, *Portfolio Management in Finance*, Ecole Mohammadia d'Ingénieurs (EMI), Rabat, September 2012, supervisors: R. Aboulaich, R. Ellaia (Rabat) and A. Habbal.

PhD in progress : Sébastien Bourasseau, *Méthodes de raffinement de maillages non structurés basées sur le vecteur adjoint pour le calcul de coefficients aérodynamiques*, October 2011, Supervisors: Jean-Antoine Désidéri and Jacques Peter (ONERA/DSNA).

PhD in progress : Aalae Benki, *Optimisation concurrente de forme de coque mince en régimes élastoplastique et de crash*, October 2010, supervisor: A. Habbal.

PhD in progress : Maria Laura Delle Monache, *Traffic flow modeling by conservation laws*, October 2011, supervisor: P. Goatin

PhD in progress : Mohamed Kaicer, *Group lending : analysis of asymetric information using game theory. Analysis design and implementation of a simulator adapted to microfinance market*, October 2009, Supervisors: R. Aboulaich (Rabat) and A. Habbal.

PhD in progress : Jérémie Labroquère, *Optimization of Flow Control Devices*, October 2010, Supervisors: Jean-Antoine Désidéri and Régis Duvigneau.‘

PhD in progress : Matthias Mimault, *Crowd motion modeling by conservation laws*, October 2012, supervisor: P. Goatin

PhD in progress : Andrea Minelli, *Optimisation simultanée des performances aérodynamiques et du bang sonique d'un aéronef supersonique*, October 2010, Supervisors: Jean-Antoine Désidéri and Itham El Salah Dinh (ONERA/DAAP).

PhD in progress : Maxime Nguyen Dinh, *Qualification des simulations numériques par adaptation anisotropique de maillages*, October 2011, Supervisors: Jean-Antoine Désidéri and Jacques Peter (ONERA/DSNA).

PhD in progress : Fatima Zahra Oujebbour, *Modèles de jeux en optimisation de forme en emboutissage*, October 2010, Supervisors: A. Habbal.

PhD in progress : Enric Roca Leon, *Simulation aéromécanique pour l'optimisation de rotor d'hélicoptère en vol d'avancement*, October 2011, Supervisors: Jean-Antoine Désidéri and Arnaud Le Pape (ONERA/DAAP).

PhD in progress : Laurentiu Trifan, *Plateforme collaborative pour l'optimisation multidiscipline*, December 2009, Supervisors: Jean-Antoine Désidéri and Toan Nguyen.

PhD in progress : Adrien Zerbinati, *Optimisation multidisciplinaire robuste pour application à l'automobile*, January 2010, Supervisors: Jean-Antoine Désidéri and Régis Duvigneau.

9.2.3. Juries

- T. Nguyen was member of the PhD Defense Jury of Mr. Balaji Raghavan, Université de Technologie de Compiègne, December 2012.
- P. Goatin was referee and member of the PhD Defense Jury of Aude Hofleitner, Université Paris-Est, December 2012.

9.3. Popularization

J.-A. Désidéri has delivered the conference *"Modélisation et simulation : lorsque l'ingénierie devient numérique"* ("Modelling and simulation : when engineering becomes numerics") to engineering students in Avignon (May 2012).

P. Goatin has delivered the conference "Comment les mathématiques contribuent-elles à la gestion du trafic routier?" to the Université d'été de mathématique "Modèles mathématiques et réalité" organised by the Creteil Academy in Sourdun (August 2012).

POEMS Project-Team

9. Dissemination

9.1. Scientific Animation

- A. S. Bonnet-Ben Dhia is the Head of the Electromagnetism Group at CERFACS (Toulouse)
- A. S. Bonnet-Ben Dhia is in charge of the relations between l'ENSTA and the Master "Dynamique des Structures et des Systèmes Couplés (Responsible : Etienne Balmes)".
- A. S. Bonnet-Ben Dhia is presidente of the "Conseil scientifique de l'Institut des sciences de l'ingénierie et des systèmes (INSIS-CNRS)".
- M. Bonnet is associate editor of European Journal of Mechanics A/Solids (since Jan. 2008).
- M. Bonnet is associate editor of Engineering Analyses with Boundary Elements (since July 2011).
- M. Bonnet is on the editorial board of *Inverse Problems*.
- M. Bonnet is on the editorial board of *Computational Mechanics*.
- P. Ciarlet is an editor of DEA (Differential Equations and Applications) since July 2008
- P. Ciarlet is an editor of CAMWA (Computers & Mathematics with Applications), since January 2012
- G. Cohen is a scientific expert of ONERA.
- P. Joly is a member of the scientific committee of CEA-DAM.
- P. Joly is a member of the Scientific Committee of the Seminar in Applied Mathematics of College de France (P. L. Lions).
- P. Joly is an editor of the journal Mathematical Modeling and Numerical Analysis.
- P. Joly is a member of the Book Series Scientific Computing of Springer Verlag.
- M. Lenoir is a member of the Commission de Spécialistes of CNAM.
- M. Lenoir is in charge of Master of Modelling and Simulation at INSTN.
- E. Lunéville is the Head of UMA (Unité de Mathématiques Appliquées) at ENSTA.
- The Project organizes the monthly Seminar Poems (Coordinators: A. Burel, N. Chaulet, S. Chaillat, S. Marmorat)

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

- Eliane Bécache
  - *Compléments sur la méthode des éléments finis*, ENSTA (2nd year).
  - *Cours sur les PML*, Collège Polytechnique, Paris.
- Anne-Sophie Bonnet-Ben Dhia
  - *Outils élémentaires d'analyse pour les EDP*, ENSTA (1st year).
  - *Propagation dans les guides d'ondes*, ENSTA (3rd year).
  - *Théorie spectrale des opérateurs autoadjoints et applications aux guides optiques*, ENSTA (2nd year).
  - *Propagation des ondes*, Ecole Centrale de Paris (M2).
- Marc Bonnet
  - *Outils élémentaires d'analyse pour les EDP*, ENSTA (1st year).

  - *Problèmes inverses*, Master TACS (ENS Cachan) et DSMSC (Centrale Paris).
  - *Méthodes intégrales*, Master TACS (ENS Cachan).
  - *Equations intégrales et multipôles rapides*, Ecole doctorale MODES (Univ. Paris Est, Marne la Vallée).
- Laurent Bourgeois
  - *Outils élémentaires pour l'analyse des EDP*,ENSTA (1st year).
  - *Fonctions de la variable complexe*,ENSTA (2nd year)
- Aliénor Burel
  - *Probabilités*, IUT d'informatique, Université Paris-Sud XI, Orsay (2nd year).
  - *Analyse*, IUT d'informatique, Université Paris-Sud XI, Orsay (1st year).
- Maxence Cassier
  - *Système dynamique: Stabilité et Commande*, ENSTA (1st year).
  - *Introduction à MATLAB*, ENSTA (1st year).
  - *Fonction de variable complexe*, ENSTA (2nd year)
  - *Tutorat pour élèves en difficulté en mathématiques appliquées*, ENSTA (1st year).
- Stéphanie Chaillat
  - *Introduction à la discrétisation des équations aux dérivées partielles*, ENSTA (1st year).
  - *Fonctions de variable complexe*, ENSTA (2nd year)
- Mathieu Chamaillard
  - *Introduction aux équations aux dérivées partielles hyperboliques et à leur discr'etisation*, ENSTA (1st year)
  - *Introduction au Calcul Scientifique*, ENSTA (2nd year)
  - *Tutorat pour élèves en difficulté en mathématiques appliquées*, ENSTA (1st year).
- Nicolas Chaulet
  - *Equations différentielles et introduction à l'automatique*, ENSTA (1st year)
  - *Méthode des éléments finis*, ENSTA (2nd year)
- Patrick Ciarlet
  - *Méthode des éléments finis*, ENSTA, Paris (2nd year)
  - *Compléments sur la méthode des éléments finis*, ENSTA, Paris (2nd year)
  - *Parallélisme et calcul réparti*, ENSTA (3rd year), and Master "Modeling and Simulation" (M2)
  - *Les équations de Maxwell et leur discrétisation*, ENSTA, Paris (3rd year), and Master "Modeling and Simulation" (M2)
- Sonia Fliss
  - *Méthode des éléments finis*, ENSTA, Paris (2nd year)
  - *Programmation scientifique et simulation numérique*, ENSTA, Paris (2nd year)
  - *Introduction à la discrétisation des équations aux dérivées partielles*, ENSTA, Paris (1st year).
- Christophe Hazard
  - *Outils élémentaires d'analyse pour les EDP*, ENSTA, Paris (1st year)
  - *Théorie spectrale des opérateurs autoadjoints et applications aux guides optiques*, ENSTA, Paris (2nd year).
- Patrick Joly

  - *Introduction à la discrétisation des équations aux dérivées partielles*, ENSTA, Paris (1st year).
  - *Outils élémentaires d'analyse pour les EDP*, ENSTA, Paris (1st year).
- Marc Lenoir
  - *Fonctions de variable complexe*, ENSTA, Paris (2nd year).
  - *Equations intégrales*, ENSTA, Paris (3rd year).
- Eric Lunéville
  - *Introduction au calcul scientifique*, ENSTA, Paris (2nd year)
  - *Programmation scientifique et simulation numérique*, ENSTA, Paris (2nd year)
  - *Propagation dans les guides d'ondes*, , ENSTA, Paris (2rd year)
- Simon Marmorat
  - *Introduction aux équations aux dérivées partielles hyperboliques et à leur discr'etisation*, ENSTA, Paris (1st year)
  - *La méthode des éléments finis*, ENSTA, Paris (2nd year)
- Jean-François Mercier
  - *Outils élémentaires d'analyse pour les EDP*, ENSTA, Paris (1st year).
  - *Fonctions de variable complexe*, ENSTA, Paris (2nd year).
  - *Théorie spectrale des opérateurs autoadjoints et application aux guides optiques*, ENSTA, Paris (2nd year).
- Nicolas Salles
  - *Analyse et séries de Fourier*, Université Paris XI Orsay (L2)
  - *Systèmes Linéaires (Matlab)*, Université Paris XI Orsay (L3)
  - *Calcul scientifique*, Université Paris XI Orsay (L3)

9.2.2. Supervision

HdR : Laurent Bourgeois, "Sur quelques problèmes inverses gouvernés par des équations aux dérivées partielles elliptiques", Université Pierre et Marie Curie, Paris 6, 3 Février 2012

PhD : Juliette Chabassier , "Modeling and numerical simulation of a grand piano", Ecole Polytechnique, 12 Mars 2012, Patrick Joly

PhD : , Nicolas Chaulet, "Modèles d'impédance généralisée en diffraction inverse", Ecole Polytechnique, 27 Novembre 2012, Laurent Bourgeois

PhD : , Lucas Chesnel, "Étude de quelques problèmes de transmission avec changement de signe. Application aux métamatériaux", Ecole Polytechnique, 12 Octobre 2012, Anne-Sophie Bonnet-Ben Dhia, et Patrick Ciarlet

PhD : Sébastien Imperiale, "Modélisation mathématique et numérique de capteurs piézoélectriques", Université Paris IX, 19 Janvier 2012, Gary Cohen et Patrick Joly

PhD in progress : Alienor Burel, "Methodes numériques pour les ondes élastiques en présence d'interfaces minces et de milieux mous", Octobre 2010, Patrick Joly

PhD in progress : Maxence Cassier, "Methodes de retournemet temporel en régime transitoire", Octobre 2010, Christophe Hazard et Patrick Joly

PhD in progress : Matthieu Chamaillard , "Conditions aux limites effectives pour des revêtements minces périodiques", Octobre 2011, Patrick Joly

PhD in progress : 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", Mars 2012, Patrick Joly

PhD in progress : Nicolas Salles, "Stabilisation du calcul des singularités dans les méthodes d'équations intégrales variationnelles", Octobre 2009, Marc Lenoir

PhD in progress : Antoine Tonnoir , "Simulation numérique de la diffraction d'ondes ultrasonores par un défaut localisé dans une plaque élastique anisotrope", Octobre 2011, Anne-Sophie Bonnet-Ben Dhia et Sonia Fliss

PhD in progress : Audrey Vigneron , "Formulations intégrales pour la simulation du contrôle non destructif par courants de Foucault", Novembre 2011, Marc Bonnet

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

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

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

PhD in progress : Camille Carvalho, "Guides d'onde plasmonique" , Octobre 2012, Anne-Sophie Bonnet-Ben Dhia, et Patrick Ciarlet

PhD in progress : Valentin Vinoles, "Etude de quelques problèmes mathématiques de la théorie des métamatériaux", Octobre 2012, Sonia Fliss et Patrick Joly

PhD in progress : Mathieu Lecouvez, "Méthodes de décomposition de domaine optimisées pour la propagation d'ondes en régime harmonique", Mars 2012, Patrick Joly

9.3. Popularization

- Marc Bonnet
  - *Topological derivative of energy cost functionals - application to flaw identification*, ECCOMAS Conference, Vienne, Austria, September.
  - *An error in constitutive equation approach for transient inverse elastodynamics (with W. Aquino)*, 8th European Solid Mechanics Conference, Graz, Austria, July.
  - *Flaw identification using elastodynamic data and small-defect asymptotics of cost functionals*, 1st Russian-French conference on mathematical geophysics, mathematical modeling in continuum mechanics and inverse problems, Biarritz, June.
- Laurent Bourgeois
  - *Sur une "approche extérieure" pour résoudre le problème inverse de l'obstacle*, Journée "Problèmes inverses", CNAM, June 21th.
  - *An "exterior approach" to solve the inverse obstacle problem for the Stokes system*, Control of Fluid-Structure Systems and Inverse problems, Toulouse, July 25-28th
- Aliénor Burel
  - *Using potentials in elastodynamics : a challenge for FEM*, First Franch-Russian Workshop Conference on Mathematical Geophysics, Continuous Mecanical Modelisation and Inverse Problems, Biarritz, June 18-22th.
  - *Elastic Wave Propagation in Soft Elastic Materials With Thin Layers*, Inria Junior Seminar, Rocquencourt, June 26th.
- Maxence Cassier
  - Recent Advances in Modeling, Analysis and Simulation of Wave Propagation Metz March 29 - March 31st.
  - Wave propagation in complex media and applications, Heraklion, Crete, May 7-11th.
- Stéphanie Chaillat

  - *A New Fast Multipole Method for 3D Elastodynamics based using the Half-Space Fundamental Solutions.* EUROMECH Colloquium 540: Advanced Modelling of Wave Propagation in Solids, Prague, Czech Republic, October 2012.
  - *Fast multipole accelerated boundary integral equation method for 3-D elastodynamic problems in a half-space*, Séminaire du LaMSID, EDF R&D Clamart, France, September 2012.
  - *A New Fast Multipole Method for Elasticity based on the Half-Space Fundamental Solutions*, ECCOMAS 2012, Vienna, Austria, September 2012.
  - *Formulation and Fast Evaluation of the Multipole Expansions of the Elastic Half-Space Fundamental Solutions*, ESMC 2012, Graz, Austria, July 2012.
  - *A new fast multipole formulation for the elastodynamic half-space fundamental solutions*, 4th Workshop BEM on the Saar, Saarbrucken, Germany, May 2012.
- Nicolas Chaulet
  - *Reconstruction of a perfectly conducting obstacle coated with a thin dielectric layer*, PICOF'12, Palaiseau (France), June 4-6th.
  - *A factorization method for support characterization of an obstacle with a generalized impedance boundary condition*, IPMS conference, Antalya (Turkey), May 21-26th.
- Lucas Chesnel
  - *Transmission eigenvalue problems with sign-changing coefficients*, Picof conference, Palaiseau, April.
  - *Time harmonic Maxwell equations with sign changing coefficients*, Around scattering by obstacles and billiards, Aveiro, Portugal, March.
- Sonia Fliss
  - *Wave propagation in locally perturbed periodic infinite media*, Forschungseminar "Amthematische Modelle der Photonik", Berlin, January.
  - *Dirichlet-to-Neumann operators in periodic waveguide : application to the application of trapped modes*. Days on diffraction 2012, May.
  - *A DtN approach for the exact computation of guided modes in a photonic crystal waveguides*, Seminar of CERMICS, Marne La Vallée, June.
  - *On the relevance of effective models of metamaterials near the boundary*, GDR Ultrasons, Paris, December.
- Patrick Joly
  - *Mathematical modelling of non homogeneous coaxial cables for time domain simulation*, Journées Guides d'Ondes, Marseille, 27-28 January 2012
  - *Mathematical modelling of non homogeneous coaxial cables for time domain simulation*, Worshop MOPNET (EPSRC Matrix and Operator Pencil Network), Bath University, England, April 2012
  - *Numerical simulation of a grand piano*, Wave propagation in complex media and applications, Archimedes Center for Modeling, Analysis and Computation (ACMAC), University of Crete, Heraklion, Mai 2012
  - *Asymptotic modelling of electromagnetic wave propagation in co-axial cables*, Workshop on Numerical Solution of Evolution Problems, Heraklion, Crete, Septembre 2012
  - *Mathematical modeling of non-homogeneous lossy co-axial cables for time domain simulation*, Inria Bcam workshop, Biarritz October 2012
- Jean-François Mercier
  - *Time-harmonic acoustic scattering in a complex flow*, Anne-Sophie Bonnet-BenDhia, Jean-François Mercier, Florence Millot, Sébastien Pernet et E. Peynaud, Acoustics 2012, Nantes, avril 2012
  - *Propagation of guided waves through weak penetrable scatterers*, A. Maurel et J.-F. Mercier, Seventh Meeting of the GDR "Wave Propagation in complex media for quantitative and non destructive evaluation", Oléron, May 2012

SCIPORT Team

8. Dissemination

8.1. Scientific Animation

- Laurent Hascoët was on the program committee of the AD2012 conference, Fort Collins, Colorado, july 2012.
- Laurent Hascoët is on the organizing commitee of the EuroAD Workshops on Automatic Differentiation. No workshop was organized this year to avoid conflict with the AD2012 conference.
- Laurent Hascoët is a member of the internal "CDT" committee at Inria Sophia-Antipolis ("Comité Développement Technologique").

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Licence : Hubert Alcin, monitorat Analyse Numerique, 30 h, niveau L3, Université de Nice, France

Master : Laurent Hascoët, Optimisation avancée, 15 h, niveau M2, Université de Nice, France

8.2.2. Supervision

PhD : Hubert Alcin, "Résolution d'écoulements instationnaires et adjoints", Université de Nice, defended december 5th, 2012, advisors A. Dervieux and L. Hascoët

PhD in progress : Alexandre Carabias, "Adaptation de maillage pour calculs d'écoulements à l'ordre 3", started october 2011, advisor A. Dervieux

PhD in progress : Gauthier Brethes, "Multigrilles anisotropes adaptatives", started october 2012, advisor A. Dervieux

8.2.3. Juries

- Alain Dervieux was jury for the thesis of Olivier Rouch, Montrèal, and of Hubert Alcin, Nice.

8.3. Conferences and workshops

- Laurent Hascoët was invited to present Automatic Differentiation at NATIXIS, Paris, april 2012.
- Alexandre Carabias presented a seminar "Controle de la dispersion et de la dissipation pour un schema a reconstruction quadratique", during an ECINADS meeting, Inria Sophia Antipolis, april 2012.
- Alain Dervieux was invited to present "Goal-oriented anisotropic mesh adaptation based on a priori estimates" (F. Alauzet, A. Belme, A. Loseille, D. Guégan, A. Dervieux), at the Workshop on Adaptive Methods with Applications in Fluid Dynamics (ADAP-CFD12) (WIAS), Berlin, april 2012.
- Laurent Hascoët was invited to present advances in Automatic Differentiation at CERFACS, Toulouse, may 2012.
- Hubert Alcin presented "On 2-level Schwarz algorithms for LES compressible flows" (H. Alcin, O. Allain, B. Koobus and A. Dervieux), at ParCFD2012, Atlanta, may 2012.
- Alexandre Carabias presented a seminar "Schema QV6 et adaptation", with team Gamma3, Inria Rocquencourt, may 2012.

- Alexandre Carabias presented a seminar "Controle de la dispersion et de la dissipation pour un schema a reconstruction quadratique" at "Colloque des doctorants de 2eme année", Université de Nice, may 2012.
- Alain Dervieux gave a short course "Sensitivity analysis by adjoint Automatic Differentiation and Application" (A. Belme, M. Martinelli, L. Hascoët, V. Pascual, A. Dervieux), at the ERCOFTAC Course on Uncertainty Management and Quantification in Industrial Analysis and Design, EDF , PARIS, may 2012.
- Laurent Hascoët gave an introductory course on Automatic Differentiation [17] during the "Advanced data assimilation for geosciences" course (org. E. Blayo, M. Bocquet, and E. Cosme), Les Houches school of physics, june 2012.
- Laurent Hascoët presented at the two meetings of the JLPC Inria-Illinois joint laboratory: "Toward Adjoinable MPI", Rennes, june 2012, and "The Data-Dependence graph of Adjoint Codes", Argonne Nat. Lab., november 2012.
- Laurent Hascoët presented [18] "Using Automatic Differentiation to study the sensitivity of a crop model" at AD2012 conference, Fort Collins, Colorado, july 2012.
- Valérie Pascual presented [16] "Native handling of Message-Passing communication in Data-Flow analysis" at AD2012 conference, Fort Collins, Colorado, july 2012.
- Laurent Hascoët presented an overview of Automatic Differentiation at "Ecole d'été UFA" (org. A. Desideri), Sophia-Antipolis, september 2012.
- Alain Dervieux presented "Goal-Oriented mesh adaptation for vortex shedding flows" (H. Alcin, A. Belme, A. Loseille, F. Alauzet, S. Wornom , A. Dervieux), at ECCOMAS, Vienna, Austria, september 2012.
- Carine Moussaed presented "A Dynamic VMS-LES model and its Hybrid extension for bluff body flows" (C. Moussaed, S. Wornom, B. Koobus, M.-V. Salvetti, A. Dervieux), at ECCOMAS, Vienna, Austria, september 2012.
- Alexandre Carabias presented "Anisotropic Goal-oriented estimate for a third-order accurate Euler model" (A. Carabias, A. Belme, F. Alauzet, A. Dervieux, A. Loseille), at ECCOMAS, Vienna, Austria, september 2012.
- Hubert Alcin has presented "Goal-Oriented mesh adaptation and 2-level Schwarz Algorithms", at CERFACS seminar, Toulouse, october 2012.
- Laurent Hascoët, together with Andreas Griewank, served as evaluator for B. Pearlmutter team in NUI Maynooth, Ireland, november 2012.
- Laurent Hascoët spent two weeks at Argonne Nat. Lab. to work on an adjoinable MPI library with Jean Utke, november 2012.
- Alain Dervieux gave a short course "Indicateurs de raffinement et adaptation de maillage en simulation numérique pour la Mécanique des Fluides" (A. Dervieux, F. Alauzet), during the "Cours sur la Vérification des simulations numériques en Mécanique des Milieux Continus", Collège X, Paris, november 2012.

SIMPAF Project-Team

9. Dissemination

9.1. Scientific Animation

- A. Gloria is in charge with D. Bonheure of the "PDE and analysis" seminar at ULB since September 2012.
- M. Rousset was in charge of the PDE and numerical analysis seminar of the mathematics department Paul Painlevé until September 2012.
- S. de Bièvre was part of the organizing committee of the "CEMPI Inaugural Conference" in September 2012.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

S. De Bièvre is in charge of the Doctoral formation in Applied Mathematics at the University of Lille.

E. Creusé is in charge of the first year of the master program "Ingénieurie Mathématique" of the Lille 1 University.

C. Besse is in charge of the international Master degree at the University of Lille 1 devoted to Scientific Computing.

Members of the team are involved in MSc degrees at USTL (C. Calgaro, S. De Bièvre, G. Dujardin, M. Rousset).

P. Lafitte is involved in a MSc in Ile de France (M2S) and is in charge of the PDE teaching in first year at École Centrale Paris.

I. Lacroix-Violet teaches numerical analysis in L3 at Polytech Lille (98h).

A. Gloria teaches at ULB (licence 2, master 2, 120h).

9.2.2. Supervision

HdR : A. Gloria, "Qualitative and quantitative results in stochastic homogenization", Lille 1, February 24th 2012

PhD in progress : É. Soret, since September 2011, “Stochastic acceleration and equilibration, Supervision by S. De Bièvre and T. Simon (Painlevé)

PhD in progress : P.-L. Colin, "Étude théorique et numérique de modèles mathématiques de corrosion", 09/01/2012, C. Chainais-Hillairet et I. Lacroix-Violet

9.2.3. Juries

C. Chainais, G. Dujardin and P. Lafitte are members of the jury of the national hiring committee of the “Agrégation de mathématiques”.

9.3. Popularization

C. Calgaro is in charge of the communication of "Laboratoire Paul Painlevé" and she is in charge of the relation between the University of Lille and high schools. Accordingly, she organizes various events like "Les Mathématiques itinérantes" and "Stage de seconde à contenu scientifique". With the help of the Communication Department of Inria, C. Calgaro, E. Creusé and T. Goudon produced a documentary fiction (in French) for a general audience on how research in applied mathematics is being done. The title is "Avis de recherche" (see http://www.inria.fr/avisderecherche).

On Wenesday, 19th of September 2012, C. Calgaro and C. Besse organized with the mathematics department P. Painlevé laboratory, the Société Mathématique de France, Inria, CNRS and Lille 1 University the conference "Un texte, un mathématicien" in Lille. The invited speaker was C. Villani, the 2010 Fields medalist. This conference had a great success with over 1200 participants.

APICS Project-Team

9. Dissemination

9.1. Scientific Animation

L. Baratchart, S. Chevillard and J. Leblond gave communications at the Workshop on Inverse Magnetization Problems, Nashville, USA (Apr.).

L. Baratchart and J. Leblond gave communications at PICOF, Conference Problèmes Inverses, Contrôle et Optimisation de Formes, Palaiseau, France (Apr.).

L. Baratchart gave invited talks at the Workshop on Potential Theory and Applications, Szeged, Hungary (June), and at SIGMA 2012, CIRM-Luminy (Nov). He gave a talk at the Conférence en l'honneur de Gauthier Sallet, Saint Louis du Sénégal (Dec.). He was a colloquim speaker at the State University of New York, Albany, USA (October) and at the University of Oregon, USA (Oct.).

S. Chevillard gave a talk at the ERNSI 2012 conference in Maastricht (Netherlands). He reviewed an article for the Journal of Symbolic Computation.

J. Leblond was invited to give a talk at the following conferences: Conference Control & Inverse Problems for PDE (CIPPDE), Santiago, Chili (Jan.), Workshop Control of Fluid-Structure Systems & Inverse Problems, Toulouse, France (Jun.), International Conference on Constructive Complex Approximation, Lille, France (Jun.), Joint Congress of the French & Vietnamese Math. Soc. (VMS-SMF), Hué, Vietnam (Aug.), Congress on Numerical MEthods & MOdelisation (MEMO), Tunis, Tunisie (Dec.). She also gave communications at the seminars of the School of Mathematics, Univ. Leeds, U.K. (Feb.), of the Institut de Mathématiques de Bordeaux (IMB, Univ. Bordeaux, Mar.), of the Department of Math. & Geosciences, Univ. Trieste, Italy (Oct.), and at the 2nd Nice Physical Day ("Journées de la Physique de Nice"), Nice (Dec.).

M. Olivi was co-organizer (with B. Hanzon and R. Peeters) of an invited session "model reduction/approximation" at the 16th IFAC Symposium on System Identification, Brussels, July 2012.

D. Ponomarev presented a poster [27] at the 2nd PhD Event in Fusion Science and Engineering, Pont-a-Mousson (Oct.).

E. Pozzi gave several communications at seminars at Univ. of Besançon, Grenoble (Jan.), Bordeaux, Orléans (Mar.), Marseille, Lille (Apr.)

F. Seyfert was invited to give a talk at the European Microwave Week 2012, Workshop on Advances of N-port networks for Space Application, Amsterdam, Netherlands.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence: E. Pozzi, Numerical algorithmics, 26h ETD (from Sep.), L3, Computer Sciences, Polytech'Nice, Univ. Nice Sopia Antipolis, France.

9.2.2. Supervision

PhD: A.-M. Nicu, Approximation et représentation des fonctions sur la sphère. Applications aux problèmes inverses de la géodésie et l'imagerie médicale [13]. Univ. Nice Sophia Antipolis, ED STIC, Feb. 2012 (advisor: J. Leblond).

PhD in progress: S. Chaabi, Boundary value problems for pseudo-holomorphic functions, since Nov. 2008 (advisors: L. Baratchart and A. Borichev).

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

9.2.3. Juries

- J. Leblond (advisor) and M. Olivi (examinator) were members of the PhD jury of A.-M. Nicu (Univ. Nice Sophia Antipolis, Feb.) [13].
- J. Leblond was a member (reviewer) of the PhD jury of N. Chaulet (Ecole Polytechnique, Nov.).
- L. Baratchart was the head of the PhD jury of Matteo Santacesaria (Ecole Polytechnique, Dec.).

9.3. Popularization

- M. Olivi is co-president with I. Castellani of the Committee MASTIC (Commission d'Animation, de Médiation et d'Animation Scientifique) https://project.inria.fr/mastic/. She is responsible for Scientific Mediation.
- J. Leblond and E. Pozzi are members of this committee.
- E. Pozzi participated to the "Filles et mathématiques" day, Avignon, Nov.

9.4. Community services

L. Baratchart is a member of the Editorial Boards of *Constructive Methods and Function Theory* and *Complex Analysis and Operator Theory*. He is Inria's representative at the « conseil scientifique » of the Univ. Provence (Aix-Marseille).

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" of Inria. Together with C. Calvet from Human Resources, she is in charge of the mission "Conseil et soutien aux chercheurs" within the Research Centre, and she participated to the working group BEAT ("Bien Être Au Travail").

M. Olivi is a member of the CSD (Comité de Suivi Doctoral) of the Research Center. She is responsible for scientific mediation.

F. Seyfert is a member of CUMIR at InRIA Sophia-Antipolis-Méditerrannée.

BIPOP Project-Team

9. Dissemination

9.1. Scientific Animation

- A. Tonnelier: Membre du CNU, section 26.
- F. Bertails-Descoubes has been a reviewer in 2012 for ACM SIGGRAPH, ACM Transactions on Graphics,, and Eurographics.
- Jérôme Malick: Associate Editor for Journal of Global Optimization (Springer)
- P.-B. Wieber is member of the Program Committee of the IEEE-RAS International Conference on Humanoid Robots, reviewer for IEEE Transactions in Robotics, Int. J. Robotics Research, etc.
- B. Brogliato has been a reviewer for Automatica, Systems and Control Letters, Multibody System Dynamics, SIAM J. Control Optimization, IEEE Transactions Automatic Control, ASME Journal of Applied mechanics, European Journal of Mechanics A/Solids, Int. J. Robotics Research, etc.
- Organization of the summer school *Nonsmooth Contact Mechanics: Modeling and Simulation*, Aussois, 9-4 September 2012.
- V. Acary is co-animator (with R. Leine ETH Zurich) of the European network for nonsooth dynamics. Member of the ENOC (EUROMECH Nonlinear Oscillations Conference) comittee. Reviewer in 2012 for Math reviews, ASME Journal of Applied Mechanics, International Journal for Numerical Methods in Engineering, Journal of Franklin Institute, European Control Conference, American Control Conference, 51st IEEE Conference on Decision and Control (CDC 2012)

9.2. Teaching

Master : Bernard Brogliato, nonsmooth dynamical systems, 15h, M2, université de Limoges, France

Doctorat : Bernard Brogliato, Multiple Impacts, 7.5h, Aussois Ecole d'été Inria Nonsmooth Contact Mechanics: Modeling and Simulation, France

Doctorat : Vincent Acary, Numerical simulation of nonsmooth mechanical systems, 9.5h, Aussois Ecole d'été Inria Nonsmooth Contact Mechanics: Modeling and Simulation, France

Doctorat : Florence Descoubes, Numerical simulation of hair dynamics and fibers, 3.5h, Aussois Ecole d'été Inria Nonsmooth Contact Mechanics: Modeling and Simulation, France

Master : F. Descoubes, Optimisation numérique, 30h equiv. TD, niveau M1, ENSIMAG, Grenoble INP

Master : Jérôme Malick, Optimisation numérique, 60h eqTD, Master1 of ENSIMAG

Master : P.-B. Wieber, Autonomous Robotics, 13.5h eqTD, Master2 Mosig

9.3. Supervision

PhD : Andrei Herdt, Model predictive control of a humanoid robot, Mines ParisTech, 27 Jan. 2012, Pierre-Brice Wieber and Bernard Espiau

PhD : Mehdi Benallegue, Mirror controller: A Bio-Inspired Computational Approach for Human Walking Motion Imitation by a Humanoid Robot, Université Montpellier 2, 15 Dec. 2011, Pierre-Brice Wieber and Bernard Espiau.

PhD : Zohaib Aftab, Dynamic Simulation of Balance Recovery: Application to the standing passengers of public transport, université de Lyon 1, 21 novembre 2012, Pierre-Brice Wieber and Thomas Robert and Bernard Brogliato

PhD in progress : Mounia Haddouni, 01 mai 2012, Vincent Acary et Bernard Brogliato

PhD in progress : Olivier Huber, 01 octobre 2011, Vincent Acary et Bernard Brogliato

PhD in progress : Narendra Akahdkar, 01 décembre 2012, Vincent Acary et Bernard Brogliato

PhD in progress : Alexandre Derouet-Jourdan, 01 septembre 2010, Florence Descoubes et Joelle Thollot

PhD in progress : Sofia Zaourar, 01 octobre 2011, Jérôme Malick et Bernard Brogliato

PhD in progress : Romain Casati, 01 octobre 2011, Florence Descoubes et Bernard Brogliato

PhD in progress : Federico Pierucci, 01 octobre 2012, Jérôme Malick et Zaid Harchaoui et Anatoli Ioudilski

PhD in progress : Saed al Homsi, 01 octobre 2012, Pierre-Brice Wieber et Bernard Brogliato

PhD in progress : Jory Lafaye, 01 octobre 2012, Pierre-Brice Wieber et Bernard Brogliato

9.3.1. Popularization

- Two conferences on Robotics and Mathematics “Les robots, des puces plein la tête”, for high-school students, and for high-school math teachers.

COMMANDS Project-Team

9. Dissemination

9.1. Scientific Animation

9.1.1. Editorial boards, scientific societies

- 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”.
- F. Bonnans is chairman of the SMAI-MODE group (the optimization group of the French Applied Mathematics Society).

9.1.2. Organization of conferences

The team members have been involved in the organisation of several meetings and conferences, within the SADCO project (http://itn-sadco.inria.fr). In particular, F. Bonnans and H. Zidani organised the workshop "Applied and Numerical Optimal Control", in Paris.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

F. Bonnans: Optimal control, 7h, M2, Ensta, France.

F. Bonnans: Continuous Optimization, 18h, M2, Ecole Polytechnique and U. Paris 6, France.

F. Bonnans: Numerical analysis of partial differential equations arising in finance and stochastic control, 24h, M2, Ecole Polytechnique and U. Paris 6, France.

H. Zidani: Optimal control, 14h, M2, Ensta, France.

H. Zidani: Numerical methods for front propagation, 21h, M2, Ensta France

9.2.2. Supervision

PhD & HdR

PhD: Giovanni Granato, Energy management for an electric vehicle with range extender. December 10, 2012, H. Zidani and F. Bonnans.

PhD in progress : Imène Ben-Latifa, Optimal multiple stopping and valuation of swing options in jump models. Oct. 2010, F. Bonnans and M. Mnif (ENIT, Tunis).

PhD in progress : Xavier Dupuis, Optimal control of populations; medical applications. Sept. 2010, F. Bonnans.

PhD in progress : Laurent Pfeiffer, Optimal control of large electrical networks. Sept. 2010, F. Bonnans.

PhD in progress: Zhiping Rao, Hamilton-Jacobi equations with discontinuous coefficients. Sept. 2010, H. Zidani and N. Forcadel.

PhD in progress: Athena Picarelli, First and Second Order Hamilton-Jacobi equations for State-Constrained Control Problems. Nov. 2011, O. Bokanowski and H. Zidani

PhD in progress: Cristopher Hermosilla, Feedback controls and optimal trajectories. Nov. 2011, H. Zidani.

PhD in progress: Mohamed Assellaou, Reachability analysis for stochastic controlled systems. Oct. 2011, O. Bokanowski and H.Zidani.

CORIDA Project-Team

9. Dissemination

9.1. Scientific Animation

Most of the members of the team are regular reviewers of major journals of the field and participate to major conferences. We give here below a selection of our other activities or responsabilities.

- Xavier Antoine and Karim Ramdani were members of the organizing committee of the “Journées de Metz 2012”.
- Fatiha Alabeau is member of the National Committee of the CNRS, section 41, member of the AERES committees for the CEREMADE (University Paris-Dauphine) and MAP5 (University Paris Descartes) and member of the Administration Council of the S.MA.I., was member of the organizing commitee of MCPIT2013 "Modelling, Control and Inverse Problems for the Planet Earth in all its states", Conference of the GDRE CONEDP and for “Mathematics of the Planet Earth, co-organisation”, november 18–23 2013, Institut Henri Poincaré, Paris, France and of the thematic school of the CNRS, GDRE CONEDP, “Control of PDEs, interactions and applicative challenges”, november 5–9 2012, CIRM Luminy, France, and is member of the editorial board of the journal Evolution Equations and Control Theory (EECT), American Institute of Mathematics and Sciences (AIMS)
- Antoine Henrot is head of Fédération Charles Hermite (FR CNRS 3198) which is a Federation of four scientific units: CRAN (Research Center for Automatic Control), IECN (Institut Elie Cartan of Nancy), LMAM (Mathematical Center of research in Metz), LORIA ((Lorraine Laboratory of IT Research and its Application), elected to the Administrative Council of the University of Lorraine in June 2012, and scientific Delegate for Mathematics at AERES (the French Agency for Evaluation of Research) since September 2012.
- Marius Tucnsak became senior Member of Institut Universitaire de France in 2012 and is member of the editorial boards of ESAIM COCV, Journal of Mathematical Fluid Dynamics (New) and Revue Roumaine de Mathématiques Pures et Appliquées (New).

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Most of the members of the team have a teaching position (192 hours a year) in Université de Lorraine.

- Fatiha Alabau has a full time full professor position in the University of Metz;
- Xavier Antoine has a full time full professor position at INPL;
- Thomas Chambrion has a full time associate professor position at ESSTIN;
- Antoine Henrot has a full time full professor position at INPL;
- Bruno Pinçon has a full time associate professor position at ESIAL;
- Lionel Rosier has a full time full professor position at ESSTIN;
- Jean-François Scheid has a full time associate professor position at ESIAL;
- Marius Tucsnak has a full time full professor position at UHP;
- Julie Valein has a full time associate professor position at ESSTIN.

9.2.2. Supervision

PhD : [11] Ghislain HAINE, “Observateurs en dimension infinie. Application à l’étude de quelques problèmes inverses”, Université de Lorraine, October 22, 2012. Supervisor: Karim Ramdani.

PhD: Jérôme Lohéac, “Contrôle en temps optimal et nage à bas nombre de Reynolds”, Université de Lorraine, December 6th, 2012. Supervisors: Marius Tucsnak and Jean-François Scheid (IECN and EPI Corida).

PhD in progress : Tatiana Manrique, “Stratégies efficaces pour la commande de véhicules hybrides”, Université de Lorraine. Supervisors: Gilles Millerioux (CRAN, Université de Lorraine) and Thomas Chambrion (IECN and EPI Corida).

PhD in progress: Chi Ting Wu, title not available yet, Université de Lorraine. Supervisors: Marius Tucsnak and Julie Valein (IECN and EPI Corida).

DISCO Project-Team

9. Dissemination

9.1. Scientific Animation

+ C. Bonnet is a member of the IFAC Technical Committee 2.5 on Robust Control. She is also in the boards of the association *Femmes et Mathématiques* and of the consortium Cap'Maths. She was a member of the Program Committee of the Septième Conférence Internationale Francophone d'Automatique, CIFA 2012, Grenoble. She has been co-organizing the International Workshop 'Low-Order Controllers for Dynamical Systems' November 20th to November 22nd 2012, Supelec/L2S, Paris, France. She is co-chair of the NOC of the first IFAC Workshop on Control of Systems Modeled by Partial Differential Equations, Paris September 2013 and is co-organizing the workshop Modeling and Analysis of Cancer Cells Dynamics, Paris June 2013. She is co-organizer of the "Séminaire du Plateau de Saclay". She has been an evaluator for the French National Research Agency (ANR).
+ Frédéric Mazenc was Associate Editor for the conferences 2013 American Control Conference, Washington, 51th IEEE Conference On Decision and Control, Maui, Hawaii, USA, Septième Conférence Internationale Francophone d'Automatique, CIFA 2012, Grenoble. The 54th Chinese Control and Decision Conference, May 23-25, Taiyuan, China. He is a Member of the Mathematical Control and Related Fields editorial board. He is co-organizer of the 'Séminaire du Plateau de Saclay'. He was an invited speaker at the Workshop 'Observers and Controllers for Complex Dynamical Systems', November 20th to November 22nd 2012, Supelec/L2S, Paris, France. He is evaluator for the National Agency for the Italian Evaluation of Universities and Research Institutes (ANVUR). He is evaluator for Partnership Programme - Joint Applied Research Projects - PCCA of the Romanian National Council for Development and Innovation.
+ S. Olaru is a member of the program committee of the International Conference on System Theory, Control and Computing (2011, 2012) et CIFA 2012.

  He is also member of the IFAC Technical Committee 2.5 on Robust Control.
+ A. Quadrat is an Associate Editor of the journal "Multidimensional Systems and Signal Processing" (Springer). With Georg Regensburger, he organized an invited session "Algebraic and symbolic methods in mathematical systems theory" at the forthcoming "5th Symposium on System Structure and Control" (Grenoble, 4-6/02/2013). With Mohamed Barakat and Thierry Coquand, he also organized a forthcoming mini-workshop at Oberwolfach (12-18/5/2013). He proposed a PHC Parrot with the team of Ülle Kotta, Control Systems Department, Tallinn University, Estonia, which has just been accepted. He was invited to the seminar of the Equipe Calcul algébriques et systèmes dynamiques (CASYS), Laboratory of Jean Kuntzmann, University of Grenoble, 09/02, at the Sultan Qaboos University of Oman (10-18/06) where he gave a talk, at RWTH Aachen University (17-21/09), and at RICAM, Linz (16-18/12). Finally, with Hugues Mounier (University of Orsay, L2S) and Sette Diop (CNRS, L2S), he organized a seminar on algebraic systems theory at L2S (http://pages.saclay.inria.fr/alban.quadrat/Seminar.html).
+ G. Regensburger co-organized the session AADIOS (Algebraic and Algorithmic Aspects of Differential and Integral Operators Session) at ACA'12 (Sofia, 25-28/06). He was also a program committee of ADG 2012 (Edinburgh, 17-19/09) and publicity chair and web master of MACIS 2011 (Beijing, 19-21/10).
+ Guillaume Sandou is a member of the program committee of the 2013 IEEE Symposium on Computational Intelligence in Production and Logistics Systems, as a part of the 2013 IEEE Symposium Series on Computational Intelligence (Singapore)

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence : Le Ha Vy Nguyen, Applied Informatics in Physics, 16h, Universit Paris-sud

Licence : Le Ha Vy Nguyen,Ssignals, Systems, and Control, 38h, L3, Universit Paris-sud

Licence : Sorin Olaru, Numerical methods and optimization, 38heqTD, niveau L3, Suplec

Licence : Sorin Olaru, Signals and Systems, 12heqTD, niveau L3, Suplec

Licence : Guillaume Sandou, Signals and Systems, 63h, L3, Suplec

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

Master : Le Ha Vy Nguyen, Information Processing and Source coding, 12h M1, Universit Paris-sud

Master : Sorin Olaru, Hybrid Systems, 32heqTD, niveau M1, Suplec

Master : Sorin Olaru, Automatic Control, 55heqTD, niveau M1, Suplec

Master : Sorin Olaru, Embedded Systems, 18heqTD, niveau M2, Ecole Centrale Paris

Master : Guillaume Sandou, Automatic Control, 55h, M1, Suplec

Master : Guillaume Sandou, Numerical methods, 28h, M2, Suplec

Master : Guillaume Sandou, Optimization, 18h, M2, Suplec

Master : Guillaume Sandou, Modelling and system stability analysis, 6h, M2, Suplec

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

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

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

Master : Guillaume Sandou, Embedded Systems, 18h, M2, Ecole Centrale Paris

Master : Guillaume Sandou, NonLinear systems, 11h, M2, Ecole des Mines de Nantes

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

Master : Guillaume Sandou, Multivariable control, 12h, M2, Evry University

9.2.2. Supervision

PhD in progress José Luis Avila Alonso, Mathematical Analysis of Acute Myeloid Leukemia, December 31st 2011. University Paris-Sud, STITS. Supervisors : C. Bonnet, J. Clairambault and S.I. Niculescu.

PhD Mounir Bekaik, Commande des systèmes non linéaires à retard, October 2010-December 2012. University Paris-Sud, STITS. Supervisor: Frédéric Mazenc. Co-Supervisors: Silviu I. Niculescu Defence: 19 December 2012.

PhD in progress Thach Ngoc Dinh, Monotony, Interval Observers and Delays Systems, December 2011 . University Paris-Sud, STITS. Supervisor: Frédéric Mazenc. Co-Supervisors: Silviu I. Niculescu, Silvère Bonnabel.

PhD in progress Le Ha Vy Nguyen, H_∞ Stability and control of fractional delay systems, September 15th 2011. University Paris-Sud, STITS. Supervisor: C. Bonnet.

PhD in progress Nikola Stankovic, Commande tolérante aux défauts pour systèmes à retard, September 30th 2010, University Paris-Sud, STITS. Supervisor: Sorin Olaru Co-Supervisor: Silviu I. Niculescu

HdR : Guillaume Sandou, Contribution au développement de méthodologies pour l'Automatique fondées sur l'optimisation, Universit Paris-Sud, June 2012

9.2.3. Juries

C. Bonnet was a member of the jury of Nadia Maï's HDR entitled "De la dimension infinie la dimension prospective : variations autour du paradigme d'optimalit", Universit de Nice, july 2012.

A. Quadrat was a referee of Debasattam Pal's PhD thesis entitled "Algebro-geometric analysis of multidimensional (n-D) systems", IIT Bombay, and of Anja Korporal's PhD thesis entitled "Symbolic methods for generalized Green's operators and boundary problems", University of Linz. Moreover, he was a member of the jury of Alexandre Benoit's PhD thesis entitled "Algorithmique semi-numérique rapide des séries de Tchebychev", Ecole Polytechnique.

S. Olaru was a referee of Jennifer ZARATE FLOREZ's PhD thesis entitled 'Etudes de commande par dcomposition-coordination pour l?optimisation de la conduite de valles hydro-lectriques ", GIPSA-LAB and of Mohamed Yacine LAMOUDI's PhD thesis entitled "Distributed model predictive control for energy management in building",GIPSA-LAB.

GECO Team

8. Dissemination

8.1. Scientific Animation

8.1.1. Conference organization

- "INDAM meeting on Geometric Control and sub-Riemannian Geometry", Cortona, Italy, May 21 - 25, 2012 (co-organizers: D. Barilari, U. Boscain, D. Prandi, M. Sigalotti).
- "Workshop Architecture Hybride et Contraintes", Paris, June 4th-5th 2012 (co-organizer: M. Sigalotti)

8.1.2. Editorial activity

- U. Boscain is Associate Editor of Journal of Dynamical and Control Systems, ESAIM Control, Optimisation and Calculus of Variations, Mathematical Control and Related Fields. He is also referee for Journal of Differential equations, AIMS Book series: Applied mathematics, SIAM J. Control Optim., Automatica, Rendiconti dei Lincei, Matematica ed Applicazioni, Physica A...and for the conferences ACC, CDC, MTNS...
- M. Sigalotti is Associate Editor of Journal of Dynamical and Control Systems. He is also referee for IEEE TAC, SIAM J. Control Optim., Automatica, MathSciNet, Journal of Functional Analysis...and for the conferences CDC, ACC, IFAC...

8.2. Teaching - Supervision - Juries

8.2.1. Prizes

- Emmanuel Trélat obtained the Felix Klein Prize (see Section "Highlights of the year").
- Jacek Jendrej won the *Prix du Centre de Recherche, Promotion 2009* by École Polytechnique for his stage made in 2012 under the supervision of Davide Barilari.

8.2.2. Supervision

PhD & HdR

PhD in progress: Dario Prandi, "Geometric control and PDEs", 1/9/2011, supervisors: Ugo Boscain, Mario Sigalotti.

PhD in progress: Moussa Gaye, "Some problems of geometric analysis in almost-Riemannian geometry and of stability of switching systems", 1/9/2011, supervisors: Ugo Boscain, Paolo Mason.

8.2.3. Juries

- U. Boscain was *rapporteur* of the PhD thesis of O. Cots (ICB, Dijon), defended the 20/11/2012.
- M. Sigalotti was *supervisor* of the PhD thesis of F. El Hachemi (CRAN, Nancy), defended the 5/12/2012.

8.3. Popularization

- D. Sugny cosigned a popularization paper with M. Lapert, Y. Zhang, M. Janich and S. J. Glaser for the "Actualités scientifiques du CNRS" (october 2012) on the optimal control in IMR (see [20]).
- M. Sigalotti was a speaker at the seminar Unithé of the Saclay CRI on November 2012. Title of the seminar: "Copier les algos du cerveau".

MAXPLUS Project-Team

9. Dissemination

9.1. Animation de la communauté scientifique/Scientific Animation

- M. Akian :
  - Membre élue du conseil du laboratoire du CMAP.
- S. Gaubert :
  - Vice-président du comité des projets du Centre de Recherche Inria de Saclay – Île-de-France depuis Janvier 2008, et membre nommé de la commission d'évaluation de l'Inria.
  - Membre du comité éditorial de la collection Mathématiques et Applications, SMAI et Springer.
  - Membre du comité éditorial du journal RAIRO Operations research.
  - Membre du conseil scientifique du CMAP.
  - Membre du CNU en 26ième section.
  - Membre du comité AERES ayant évalué le laboratoire M2N (Mathématiques, CNAM).
  - Coorganisateur de l'école d'été CEA-EDF-Inria d'Optimisation Stochastique, http://www-hpc.cea.fr/SummerSchools2012-SO.htm, 25 Juin - 6 Juillet, 2012, Cadarache.
  - Membre du comité de pilotage du PGMO (programme Gaspard Monge d'optimisation).

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

9.2.1. Enseignement/Teaching

- M. Akian
  - Master: " Contrôle de chaînes de Markov : programmation dynamique et applications", 18h=27h ETD, M2 Modélisation et Méthodes Mathématiques en Économie et Finance (MMMEF) de Paris 1, 1er semestre.
- X. Allamigeon
  - Master: Petites classes et encadrement d'enseignements d'approfondissement de Recherche Opérationnelle en troisième année à l'École Polytechnique (majeure de Mathématiques Appliquées) (niveau M1).
- O. Fercoq
  - Petites classes du cours d'optimisation quadratique de 1ere année de l'ENSTA (14h).
- S. Gaubert
  - Cours "Systèmes à Événements Discrets", option MAREVA, ENSMP.
  - Cours "Algèbre max-plus pour le contrôle optimal et les jeux" du Parcours Optimisation et Théorie des Jeux - Modélisation en Économie (OJME) du M2 Mathématiques et Applications de l'Université de Paris 6.
  - Cours magistral, petites classes et organisation des enseignements d'approfondissement de Recherche Opérationnelle en troisième année à l'École Polytechnique (majeure de Mathématiques Appliquées), avec polycopié [42].
- Z. Qu
  - Petites classes d'Automatique, ENSTA.

9.2.2. Encadrement/Supervision

- PhD: Sylvie Detournay, "Multigrid methods for zero-sum two player stochastic games", École Polytechnique, soutenue le 25 septembre 2012, directeur de thèse: M. Akian.
- PhD: Olivier Fercoq, "Optimisation de vecteurs propres de Perron et applications : du référencement de pages web à la chronothérapie." École Polytechnique, soutenue le 17 septembre 2012, directeur de thèse: S. Gaubert, coencadrement: M. Akian et M. Bouhtou (Orange Labs).
- PhD in progress : Zheng Qu, inscrite à l'École Polytechnique, depuis septembre 2010, directeur de thèse: S. Gaubert, coencadrement: S. Tang (Université Fudan, Shanghai, Chine).
- PhD in progress : Jean-Baptiste Dumont, inscrit à l'École Polytechnique depuis novembre 2010, directeur de thèse: S. Gaubert, coencadrement: M. Bouhtou (Orange Labs).
- PhD in progress : Pascal Benchimol, inscrit à l'École Polytechnique à partir de septembre 2011, directeur de thèse: S. Gaubert, coencadrement: X. Allamigeon, avec une participation à l'encadrement de M. Joswig (TU-Darmstadt) dans le cadre du programme bourse Monge (bourses données pour des doctorants avec un partenaire étranger).
- PhD in progress : Victor Magron, inscrit à l'École Polytechnique, depuis septembre 2010, directeur de thèse: Benjamin Werner (Inria et LIX), coencadrement: S. Gaubert et X. Allamigeon.
- PhD in progress : Andrea Marchesini, inscrit à l'École Polytechnique, depuis septembre 2012, directeur de thèse: Marianne Akian, codirection: S. Gaubert, avec une participation à l'encadrement de Françoise Tisseur (U. Manchester).

9.2.3. Jurys/Juries

- M. Akian
  - Jury de thèse de O. Fercoq (17 septembre 2012).
  - Jury de thèse de S. Detournay (25 septembre 2012).
- X. Allamigeon
  - Membre du jury du prix de thèse Gilles Kahn de la Société Informatique de France (septembre-décembre 2012).
- S. Gaubert
  - Membre de la commission de recrutement en informatique à l'École Polytechnique.
  - Membre du jury de concours Inria DR2.
  - Membre d'une commission de recrutement MdC à Paris 6 (Mathématiques / Optimisation).
  - Jury de thèse de O. Fercoq (École Polytechnique, 17 septembre 2012).
  - Jury de thèse de S. Detournay (École Polytechnique, 25 septembre 2012).
  - Jury de thèse de E Bukina (Nice - Sophia Antipolis, 19 juillet 2012, rapporteur);
  - Jury de thèse de H. Amini (École des Mines, 27 septembre 2012, rapporteur)
  - Jury d'HDR de L. Gramont (Université de Saint-Étienne, 9 mars 2012)

9.3. Popularization

- J.P. Quadrat :
  - Administre le site d'intérêt général http://www.maxplus.org, dédié à l'algèbre max-plus.
- X. Allamigeon
  - Exposé de vulgarisation dans le cadre des "Unithé ou Café" à Inria Saclay, mars 2012. Titre: "Pas d'erreurs fatales avec le tropical".

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

- M. Akian
  - Hilbert Geometries Workshop, CIRM, Luminy, 9 au 12 janvier 2012 (organisé par B. Lemmens et C. vernicos). Titre de l'exposé: "Fixed points and eigenvectors of convex monotone dynamical systems".
  - 2012 SIAM Conference on Applied Linear Algebra, June 18th-22nd, Valencia, Spain. "Minisymposium on max-algebra". Titre de l'exposé: "Tropical bounds for the eigenvalues of structured matrices".
  - MTNS 2012 (20th International Symposium on Mathematical Theory of Networks and Systems), University of Melbourne, 9-13 juillet 2012. Session invitée "Optimisation-based controller design". Titre de l'exposé: "Nonlinear spectral radii of order-preserving maps and infinite horizon zero-sum two-player stochastic games".
  - Workshop "Tropical and idempotent Mathematics", organisé par G. Litvinov, Moscou, 26-31 août 2012. Titre de l'exposé: "Fixed points of discrete convex monotone dynamical systems".
  - Séminaire du CMAP, 11 décembre 2012. Titre de l'exposé: "Aspects tropicaux du contrôle optimal ergodique".
- X. Allamigeon
  - Séminaire 68NQRT, IRISA/Inria Rennes, 16 février 2012. Titre de l'exposé: "Computing disjunctions using tropical polyhedra".
  - Séminaire du CMAP, 12 juin 2012. Titre de l'exposé: "Polyèdres tropicaux: théorie et applications".
  - 2012 SIAM Conference on Applied Linear Algebra, June 18th-22nd, Valencia, Spain. "Minisymposium on max-algebra". Titre de l'exposé: "Minimal representations of tropical polyhedra by half-spaces".
- P. Benchimol
  - Groupe de Travail des ThÃ©sards du Laboratoire Jacques-Louis Lions, Paris 6, 31 janvier 2012.
- O. Fercoq
  - Séminaire du "Research group on Large Graphs and Networks" à l'Université Catholique de Louvain, 10 février. Titre de l'exposé: "Convergence of Tomlin's HOTS algorithm and optimization of web ranking".
  - 2012 SIAM Conference on Applied Linear Algebra, June 18th-22nd, Valencia, Spain. Titre de l'exposé: "Optimization of the HOTS score of a website's pages".
  - 3rd International Conference on Engineering Optimization, July 1-5, Rio de Janeiro. Titre de l'exposé: "Synchronisation and control of proliferation in cycling cell population models with age structure".
  - 21st International Symposium on Mathematical Programming, August 19-24, Berlin. Titre de l'exposé:"Polyhedral and ergodic control approaches to PageRank optimization and spam detection".
  - 6th International conference on NETwork Games, COntrol and OPtimization (Netgcoop), November 28-30, Avignon. Titre de l'exposé: "PageRank optimization applied to spam detection".
- S. Gaubert
  - Hilbert Geometries Workshop, CIRM, Luminy, 9 au 12 janvier 2012 (organisé par B. Lemmens et C. vernicos). Titre de l'exposé: "Nonexpansive maps, zero-sum games and tropical convexity".

  - Future Directions in Tropical Mathematics & its Applications, CICADA / LMS workshop, School of Mathematics, University of Manchester. Titre de l'exposé: Lectures on tropical convexity (3 hours). "Nonexpansive maps, zero-sum games and tropical convexity".
  - Séminaire à l'Université de Saint-Étienne, 8 mars 2012. Titre de l'exposé: "Tropical eigenvalues"
  - 21st International Symposium on Mathematical Programming, August 19-24, Berlin. Titre de l'exposé: "Policy iteration algorithm for zero-sum stochastic games with mean payoff".
  - POSTA'12, Hamilton institute, Maynooth, Ireland, Sep. 3-4 2012, Titre de l'exposé: "The contraction rate in Thompson metric of order-preserving flows on a cone"
- Z. Qu
  - 9Ã¨me journée Optimeo, 26 mars 2012, École Polytechnique. Titre de l'exposé: "Curse of dimensionality reduction in max-plus based approximation methods: theoretical estimates and improved pruning algorithms."
- C. Walsh
  - Hilbert Geometries Workshop, CIRM, Luminy, 9 au 12 janvier 2012 (organisé par B. Lemmens et C. Vernicos). Titre de l'exposé: "Horofunctions and isometries of Hilbert geometries".
  - Workshop "Tropical mathematics and its applications", University of Birmingham, 28 June 2012 (organisé par Peter Butkovic). Titre de l'exposé: "The horofunction boundary".
  - Workshop "Tropical and idempotent mathematics", organisé par G. Litvinov, Moscou, 26-31 août 2012. Titre de l'exposé: "Studying isometry groups using the horofunction boundary".
  - Workshop "Lipschitz metric on TeichmÃ¼ller space", AIM, Palo Alto, California, 22 au 26 octobre 2012 (organisé par F. Kassel, A. Papadopoulos, K. Rafi, et J. Tao). Titre de l'exposé: "The horofunction boundary of Thurston's metric".

MCTAO Team

8. Dissemination

8.1. Scientific Animation

Bernard Bonnard and Ludovic Rifford belong to the editorial board of Journal of Dynamical and Control Systems.

All members of the team are active reviewers in journals of the field.

The team organized two one-day seminars:
- June 19 in Sophia ANtipolis, invited speakers: Richard Epenoy (CNES, Toulouse) and Vincent Andrieu (LAGEP, Lyon),
- September 24, in Dijon http://nolot.perso.math.cnrs.fr/JourneesControleTransport.html.
To be continued in march, 2013 in dijon and in may, 2013 in Nice.

8.2. Community service within Inria

J.-B. Pomet is the president of the "Commission de Suivi Doctoral", and in charge of "formation par la recherche". This includes organising local visits for students, organising PhD candidates selection, managing PhD students working at Inria Sophia (that are from two different "écoles doctorales" from Université de Nice, not counting these in Montpellier).

8.3. Teaching - Supervision - Juries

8.3.1. Teaching

Licence: L. Rifford, "Analyse I" and "Option Maths", 60 hours (equiv TD), Univ. de Nice Sophia Antipolis

8.3.2. Supervision

PhD: Ahed Hindawi, *Transport Optimal en Théorie du Contrôle*, Université de Nice Sophia Antipolis, defended June 27, 2012, advisors: Ludovic Rifford and Jean-Baptiste Pomet, see [1].

PhD in progress: Alice Erlinger, subject: *Economics and Optimal Transport*, Université de Nice Sophia Antipolis, started october, 2012, advisor: Ludovic Rifford.

PhD in progress: Helen Heninger, subject: , Université de Nice Sophia Antipolis, started october, 2012, advisors: Bernard Bonnard and Jean-Baptiste Pomet.

PhD in progress: Ayadi Lazrag, subject: *Control methods in dynamical systems*, Université de Nice Sophia Antipolis, started october, 2011, advisor: Ludovic Rifford.

PhD in progress: Lionel Jassionnesse, subject: *Convexité du domaine d'injectivité tangent sur le surfaces et transport optimal*, Université de Bourgogne, started october, 2010, advisor: Bernard Bonnard.

PhD in progress: John Marriott, subject: *Optimal control and the contrast problem in RMN*, University of Hawaii, started october, 2010, advisors: Monique Chyba and Bernard Bonnard, provisional defense date: August 28, 2013.

MsC: Alice Erlinger, *Problèmes de régularité en théorie du Transport Optimal*, Université de Nice Sophia Antipolis, supervisor: Ludovic Rifford.

MsC: Hamza Agli, *Etude numérique du moyenné pour le transfert orbital plan*, ENSEEIHT, supervisors: Jean-Baptiste Pomet and Bernard Bonnard.

MsC, 1st year: Ciro Duran-Santilli, *Flatness in control systems*, Ecole Polytechnique, supervisor: Jean-Baptiste Pomet.

MsC, 1st year: Igor Pontes-Duff-Pereira, *Transfert optimal d'un Satellite - Moyennation pour le temps minimum*, Ecole Polytechnique, supervisors: Jean-Baptiste Pomet and Bernard Bonnard.

NECS Project-Team

9. Dissemination

9.1. Scientific Animation

- Carlos Canudas de Wit has been an European project evaluator (STREPs and IPs) on the following programs: Cognitive systems and Robotics (FP7-ICT 2002) and Chat (http://www.ict-chat.eu/). He was elected as member of the Board of Governors of the IEEE Control System Society. He is vice-president of the European Control Association (EUCA) and member of the steering committee in charge of redefying the new EUCA constitution. Since 2010, He is Editor of the Asian Journal of Control.
- H. Fourati has been a peer-reviewer for international journals (IEEE Sensors Journal, IEEE/ASME Transactions on Mechatronics).
- D. Simon was member of the ETFA'12 (IEEE Int. Conference on Emerging Technologies and Factory Automation), CIFA'12 (Conference Internationale Francophone d'Automatique) and CAR'12 (Control Architecture of Robots) program committees, and of the IFAC Joint Conference (Grenoble, february 2013) organization committee. Involvement within the API (Automatique Pour l'Informatique) PEPS headed by E. Rutten (SARDES). Peer reviewer for the ICSCS'12, MED'12 and ECC'13 international conferences. Scientific direction of the farewell robotics seminar given in honour of Bernard Espiau.
- F. Garin has been a peer-reviewer for international journals (IEEE Trans. Automatic Control, IEEE Trans. Inform. Theory, Automatica) and conferences (CDC 2012, NecSys2012, ECC 2013) and for a chapter in a book in Springer LNCS.
- A. Kibangou has been a peer-reviewer for international journals (Automatica, IEEE Trans. on Control Systems and Technology, Elsevier Signal Processing, IEEE Trans. on Signal Processing, Electronics Letters, Int. J. of Adaptive control and Signal Processing, and System control letters) and conferences (CDC 2012, CIFA 2012, ACC 2013, ECC 2013). Locally, he is the organizer of seminars for the Control Department of GIPSA-LAB.
- A. Ben Khaled gave a talk at the "Logicels de Modélisation et de Calcul Scientifique" day (LMCS 2012) organized at Paris la Défense by EDF, IFPEN, Acsystème and Esilv in December.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence: H. Fourati, Informatique Industrielle, 100h, L1, IUT 1 (GEII2), University Joseph Fourier, France;

Licence: H. Fourati, Automatique, 24h, L2, IUT 1 (GEII2), University Joseph Fourier, France;

Licence: H. Fourati, Automatismes industriels et réseaux, 90h, L1 et L2 et 2, IUT 1 (GEII2), University Joseph Fourier, France.

Doctorat, Master: H. Fourati, Network Theory, 20h, Kazakhstan National Technical University (KazNTU), Kazakhstan.

Licence: A. Kibangou, Automatique,62h, L2, IUT1 (GEII1), University Joseph Fourier, France.

Licence: A. Kibangou, Mathématiques, 14h, L2, IUT1 (GEII1) , University Joseph Fourier, France.

Licence: F. Garin, Automatique, 32h, L2, IUT1 (GEII1), University Joseph Fourier, France.

Doctorat, Master: C. Canudas de Wit, Advanced control for transportation and vehicular systems, University of Sevilla, Spain.

Doctorat, Master: C. Canudas de Wit, Vehicular transportation, 20h, University of Valencia, Spain.
Doctorat, Master: C. Canudas de Wit, Modeling and forecasting of Traffic Systems : HYCON2 case study, 6h, University of Madrid, Spain.

9.2.2. Supervision

PhD: Patrick Jocelyn Andrianiaina, Robust control under weakend realtime constraints, Grenoble University, October 26 2012, co-advised by D. Simon and A. Seuret.

PhD: Nicolas Cardoso De Castro, Energy-aware control and communication co-design in wireless Networked Control Systems, Grenoble University, October 4th 2012, co-advised by C. Canudas de Wit and F. Garin.

PhD: Gabriel Rodrigues de Campos, Agreement strategies for multi-robot systems, Grenoble University, November 23th 2012, co-advised by A. Seuret and C. Canudas de Wit.

PhD in progress : Valentina Ciarla, Commande d'un système de puissance électrique pour personne âgée et/ou handicapée, Grenoble University, Sept 2010-Sept 2013, co-advised by C. Canudas de Wit, F. Quaine, and V. Cahouet.

PhD in progress : Abir Ben Khaled, Distributed real time simulation of numerical models: application to powertrain, Grenoble INP, Jan. 2011 - Dec. 2013, co-advised by D. Simon and M. Ben Gaid (Institut Français de Pétrole Energies Nouvelles).

PhD in progress : Luis Leon Ojeda, Modélisation macroscopique, estimation de la demande et prédiction du flux pour les systèmes de transport intelligents, Grenoble University, April 2011-March 2014, Co-advised by C. Canudas de Wit and A. Kibangou.

PhD in progress : Dominik Pisarski, Contrôle d'accès collaboratif : application à la Rocade Sud de Grenoble, Grenoble University, June 2011-May 2014, Advised by C. Canudas de Wit.

PhD in progress: Ruggero Fabbiano, Distributed source seeking control, Grenoble University, Dec. 2011 - Nov. 2014, by C. Canudas de Wit and F. Garin.

PhD in progress : Thi-Minh Dung Tran, Consensus en temps fini et ses applications en estimation distribuée pour les systèmes de transport intelligents, Grenoble University, co-advised by A. Kibangou and C. Canudas de Wit, Jan. 2012-Jan. 2015.

PhD in progress : Giovanni de Nunzio, Control of communicating vehicles in urban environnement, Grenoble University, co-advised by C. Canudas de Wit and P. Moulin (IFPEN), Sep. 2012-Aug. 2015

PhD in progress : Aida Makni, Estimation multi-capteurs et commande temps-réel tolérante aux fautes d'un drone aérien, Grenoble INP, Oct. 2012 - Sep. 2015, co-advised by H. Fourati, A. Kibangou and C. Canudas de Wit.

9.2.3. Juries

- D. Simon (reviewer and member) : J.-B. Chaudron, Jan. 25 2012, Onera and ISAE, Toulouse University;
- D. Simon (member) : Ch. Fiter, Sep. 25 2012, Lagis, Lille University ;
- D. Simon and A. Seuret (members) : P.J. Andrianiaina, Oct. 26 2012, Grenoble University;
- A. Seuret (member) : G. Rodrigues de Campos, Nov. 2012, Grenoble University.
- C. Canudas de Wit (member): S. Martin, Nov. 2012, Grenoble University.
- C. Canudas de Wit (member and reviewer): D. Efimov, HDR, Nov. 2012.

9.3. Popularization

- D. Simon has been involved in the ISN programme for the training of highschool teachers in Computer Science.
- C. Canudas de Wit animated the In'Tech seminar (Grenoble, Nov. 2012).
- C. Canudas de With animated seminars in CPS London Oct 2012 (http://controls.ame.nd.edu/mediawiki/index.php/London_CPS_Workshop#Participants) and Lund workshop (http://www.lccc.lth.se/index.php?page=workshop1210program).

NON-A Project-Team

8. Dissemination

8.1. Scientific Animation

8.1.1. Editorial boards

- Jean-Pierre Richard is currently Associate Editor of *Int. J. of Systems Science*.
- Mamadou Mboup is currently Editor-In-Chief (from December 2012) *African Diaspora Journal of Mathematics* and Associate Editor of *EURASIP Journal on Advances in Signal Processing*.
- Thierry Floquet is currently Associate Editor of *Nonlinear Analysis : Hybrid Systems* and *e-sta*.

8.1.2. Program Committees

- IFAC Technical Committees: The members of Non-A are participating to several technical committees of the IFAC (International Federation of Automatic Control, see the TC list on http://www.ifac-control.org/areas): TC 1.2 - Adaptive and Learning Systems, TC 1.3 - Discrete Event and Hybrid Systems, TC 1.5 Networked Systems, TC 2.2 Linear Control Systems, TC 2.3 Nonlinear Control Systems, TC 2.5 Robust Control, TC 9.2 Control for Society.
- Jean-Pierre Richard was the president of the International Program Committee of the 1st Int. Conf. on Systems & Computer Science, 2012, Lille.
- Mamadou Mboup was in the International Program committee of 22nd IEEE Workshop on Machine Learning for Signal Processing 2012 and 1st International Conference Systems and Computer Science 2012;
- Jean-Pierre Barbot was in the organizing committee of the MECATRONICS congress (France-Japan and Europe-Asia) and REM workshop November 21 – 23, 2012 – Supméca, Paris (France);
- Wilfrid Perruquetti and Lotfi Belkoura were in International Program committee of 7eme Conférence Internationale Francophone d'Automatique, Grenoble, France, 2012;
- Lotfi Belkoura was the NOC Chair and organizer of 1st Int. Conf. on Systems & Computer Science, 2012, Lille (IEEE Technical co-sponsorship);
- Wilfrid Perruquetti was in the International Program committee of 12th International IEEE Workshop on Variable Structure Systems (VSS), 2012, Bombay, India;
- Wilfrid Perruquetti was in the International Program committee of 1st Int. Conf. on Systems & Computer Science, 2012, Lille;
- Jean-Pierre Richard was in the International Program committee of 20th IEEE Mediterranean Conference on Control and Automation, 2012, Barcelone; 10th Workshop on Time Delay Systems, 2012, Boston; 2nd Int. Conf. on Communications, Computing and Control Applications, 2012, Marseilles; 3rd IEEE International Workshop on SmArt COmmunications in NEtwork Technologies, 2012, Canada.

8.1.3. Scientific and administrative responsibilities

- Jean-Pierre Richard is president of the GRAISyHM, federation from the French government. He is an expert for the evaluation of projects submitted to ANR, CNRS, DGRI and AERES. He is a member of the Scientific Committee of the GdR MACS, CNRS.
- Wilfrid Perruquetti is the scientific head of ANR program Blanc SIMI3, and is heading the 3rd year professional training "ISD: Information System and Decision" of the École Centrale de Lille; He is an expert for ANR, AERES and ARC (Australian Research Council);

- Mamadou Mboup is heading the group SYSCOM - CReSTIC, University of Reims Champagne-Ardenne;
- Lotfi Belkoura is heading the Master "AG2i: Automatique, Génie Informatique et Image", University of Lille 1 and École Centrale de Lille. This Master, after a national evaluation (A), is presently "SMaRT: Systèmes, Machines autonomes et Réseaux de Terrain";
- Thierry Floquet is an expert for the evaluation of projects submitted to ANR and Israel Science Foundation, and a member of Conseil National des Universités, 61ème Section. He is as well the head of the groupe SyNeR of LAGIS laboratory;
- Lotfi Belkoura is an expert of "National Council for Research and Development" (Roumanie)www.ue1Cscdi-direct.ro
- Gang Zheng is a member of Conseil National des Universités, 61ème Section.
- Cédric Join is heading the AII-ASRI, IUT Nancy-Brabois.
- Jean-Pierre Barbot is the heading of the ECS-Lab EA 3649.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

The members of the team teach at different level in universities and engineering schools and, in particular, at Master Thesis level:

Licence : Samer Riachy; Systèmes linéaires (36h), Asservissements (48h), Introduction à la thermodynamique (32h), Echantillonnage et systèmes discrets (36h), Conversion d'énergie (48h); L3; Ecole Nationale Supérieure de l'Electronique et de ses Applications; France

Licence : Jean-Pierre Richard; Automatique et Intelligence ambiante (12h); L2; EC-Lille; France

Licence : Jean-Pierre Richard; Systèmes dynamiques (30h), Métiers de la recherche (4h), Modélisation des systèmes complexes(12h), Commande et observation (12h), Séminaire episteme (24h); L3; EC-Lille; France

Licence : Lotfi Belkoura; Initiation à l'Automatique (20h), Régulation Industrielle (60h); L3; Lille 1; France

Master : Jean-Pierre Richard; Systèmes dynamiques non linéaires et à retards (30h); M2; Lille 1 – EC-Lille, France

Master : Lotfi Belkoura; Systèmes automatisés (60h); M1; Lille 1; France

Master : Lotfi Belkoura; Distributions (8h); M2; Lille 1; France

General responsibility:

- Jean-Pierre Richard is in charge of the professional training "Research" of Ecole Centrale de Lille since 2003 (training for last-year students of EC Lille who are preparing a research career). (http://www.ec-lille.fr/85787934/0/fiche___pagelibre/).
- Wilfrid Perruquetti is in charge of the professional training "ISD: Information System and Decision" of Ecole Centrale de Lille since 2010 (http://www.ec-lille.fr/syst_auto/0/fiche___formation/).
- Lotfi Belkoura is in charge of the SMART Master Thesis training in control of University of Lille 1 and Ecole Centrale de Lille.

8.2.2. Supervision

PhD & HdR :

HdR : Join C., "Une approche algébrique pour la pratique de l'estimation, du diagnostic, de la commande et de la finance", Université de Lorraine, June 2012

HdR : Efimov D., "Analysis, control and estimation of nonlinear oscillations", Inria, November 2012

PhD : Delpoux R., "Fast identification and estimation of nonlinear systems via algebraic techniques", École Centrale de Lille, November 2012, Supervisor: T. Floquet

PhD : Fiter C., "Contribution to the control of systems with time-varying and state-dependent sampling", École Centrale de Lille, September 2012, Supervisors: J.P. Richard, W. Perruquetti, L. Hetel

PhD : Zhang B., "New control schemes for bilateral teleoperation under asymmetric communication channels: Stabilization and performance under variable time delays", École Centrale de Lille, July 2012, Supervisors: J.P. Richard, A. Kruszewski

PhD in progress : EL Afou Y., "Control strategies for greenhouse climate parameters", Université des Sciences et Technologies de Lille, started 2009, Supervisors: L. Belkoura, C. Join, A. Lachhab, B. Bouchikhi

PhD in progress : Guerra M., "Supervisory control of collective motion of mobile robots", started 2012, Supervisors: W. Perruquetti, D. Efimov, G. Zheng

PhD in progress : Maalej S., "Algebraic estimation for robust control", started 2011, Supervisors: A. Kruszewski and L. Belkoura

PhD in progress : Oueslati M., "Improving the accuracy of a 6-axis industrial robot for machining", started 2009, Supervisor: O. Gibaru

PhD in progress : Sert H., "Intelligent module decision for autonomous indoor navigation of wheelchair robot", started 2012, Supervisors: W. Perruquetti and A. M. Kökösy

PhD in progress : Mincarelli D., "Algebraic approach for observation of switched systems", started 2010, Supervisors: T. Floquet and L. Belkoura

8.2.3. Juries

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

8.3. Popularization

8.3.1. Participation to conferences

- European Signal Processing Conference, Bucharest, Romania, August 2012 (Mamadou Mboup);
- 22nd IEEE Workshop on Machine Learning for Signal Processing, Santander, Spain, September 2012 (Mamadou Mboup);
- 1st International Conference Systems and Computer Science, Lille, France, August 2012 (Lotfi Belkoura, Jean-Pierre Richard, Wilfrid Perruquetti, Mamadou Mboup, Gang Zheng, Denis Efimov, Andrey Polyakov, Diego Mincarelli);
- 16th IFAC Symposium on System Identification, Brussels, July 2012 (Wilfrid Perruquetti, Mamadou Mboup, Rosane Ushirobira);
- IEEE Conference on Decision and Control, 2012, USA (Jean-Pierre Richard, Wilfrid Perruquetti, Jean-Pierre Barbot, Denis Efimov, Diego Mincarelli);
- IEEE Chinese Conference on Control and Decision, 2012, China (Gang Zheng);

- ASME 11th Biennial Conference on engineering systems design and analysis, 2012, France (Samer Riachy);
- IFAC Conference on Time-delay systems (TDS), June 2012, USA (Jean-Pierre Richard, Thierry Floquet);
- IFAC Robust Control symposium (ROCOND), 2012, Denmark (Jean-Pierre Richard);
- IFAC ADHS, 2012, Netherlands (Jean-Pierre Richard, Denis Efimov, Diego Mincarelli)
- IEEE 20th Mediterranean Conference on Control and Automation, 2012, Barcelona (Jean-Pierre Richard);
- IEEE CIFA, 2012, France (Jean-Pierre Richard, Jean-Pierre Barbot, Wilfrid Perruquetti, Gang Zheng);
- IFAC Conference on analysis and control of chaotic systems (CHAOS), 2012, Mexico (Jean-Pierre Barbot).

8.3.2. Reviews

The members of Non-A are reviewers for most of the journal of the control and signal communities: IEEE Transactions on Automatic Control, IEEE Transactions on Systems and Control Technologies, IEEE Transactions on Industrial Electronics, IEEE Transactions on Signal Processing, Automatica, SIAM Journal on Control and Optimization, Journal of Computation and Applied Mathematics, Systems & Control Letters, International Journal of Control, International Journal of Robust and Nonlinear Control, International Journal of Systems Science, Journal Européen des Systèmes Automatisés, IET Control Theory & Applications, Fuzzy Sets and Systems, Mathematics and Computers in Simulation, International Journal of Modeling and Simulation, Journal of the Franklin Institute, ...

CLASSIC Project-Team

8. Dissemination

8.1. Scientific Animation

8.1.1. Conference organization

Gilles Stoltz was the co-chair of the program committee of the 23rd International Conference on Algorithmic Learning Theory (ALT'12); see the edited volume [26]. He was also a member of the program committee of the 25th Conference on Learning Theory (COLT'12).

8.1.2. Organization of seminars

We (co-)organized the following seminars:

- Statistical machine learning in Paris – SMILE (Gérard Biau, Gilles Stoltz; see http://sites.google.com/site/smileinparis/);
- Parisian seminar of statistics at IHP (Vincent Rivoirard; see https://sites.google.com/site/semstats).

8.1.3. Editorial activities, reports written on articles

Gérard Biau serves as an Associate Editor for the journals *Annales de l'ISUP*, *ESAIM: Probability and Statistics* and *International Statistical Review*.

Olivier Catoni has been a member of the editorial committee of the joint series of monographs "Mathématiques et Applications" between Springer and SMAI until June 2012.

All permanent members of the team reviewed several journal papers during the year.

8.1.4. Participation to national or local evaluation or recruitment committees, to scientific societies

Vincent Rivoirard is a member of the Board of SFdS.

Gérard Biau was elected a member of the national board of French universities (CNU) within the applied mathematics section (number 26).

Olivier Catoni is a member of the doctoral commission in mathematics of University Pierre et Marie Curie.

All permanent members of the team participated in several recruitment committees for assistants or full professors in universities.

8.1.5. Honors and distinctions

Gérard Biau was elected a member of the Institut Universitaire de France (IUF).

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Licence : Vincent Rivoirard, Statistiques, 39h, niveau L2, Université Paris-Dauphine, France

Licence : Olivier Catoni et Gilles Stoltz, Apprentissage, 20h, niveau L3, Ecole normale supérieure, France

Licence : Gérard Biau, Théorie des probabilités, 40h, niveau L3, ISUP – Université Pierre et Marie Curie, France

Licence : Gilles Stoltz, Statistiques pour citoyens d'aujourd'hui et managers de demain, 40h, niveau L3, HEC Paris, France

Master : Gérard Biau, Statistique mathématique, 30h, niveau M1, Ecole normale supérieure, France

Master : Vincent Rivoirard, Statistique non-paramétrique, 8h, niveau M1, Ecole normale supérieure, France

Master : Vincent Rivoirard, Statistique non-paramétrique, 35h, niveau M1, Université Paris-Dauphine, France

Master : Vincent Rivoirard, Classification et statistique en grandes dimensions, 18h, niveau M2, Université Paris-Sud, France

Master : Gilles Stoltz, Statistiques et théorie de l'information, 10h, niveau M2, Université Paris-Sud, France

Master : Vincent Rivoirard, Méthodes pour les modèles de régression, 21h, niveau M2, Université Paris-Dauphine, France

Master : Vincent Rivoirard, Statistique bayésienne non-paramétrique, 21h, niveau M2, Université Paris-Dauphine, France

Master : Gilles Stoltz, Examinateur à l'oral de probabilités et statistiques de l'agrégation de mathématiques, France

8.2.2. Supervision

PhD in progress : Thomas Mainguy, Statistical learning in computational linguistics, since September 2010, supervised by Olivier Catoni

PhD in progress : Emilien Joly, Phase transition of optimal risk and detection of contamination, since September 2011, supervised by Gábor Lugosi and co-supervised by Gilles Stoltz

PhD in progress : Pierre Gaillard, Aggregation of specialized predictors for the forecasting of electricity consumption, since September 2011, supervised by Gilles Stoltz

PhD in progress : Ilaria Giulini, Dimension free PAC-Bayes bounds for the Gram matrix and unsupervised clustering on the sphere of a Reproducing Kernel Hilbert space, since September 2012, supervised by Olivier Catoni

PhD in progress : Paul Baudin, Robust aggregation of predictors for the forecasting of air quality, with measures of uncertainties, since October 2012, supervised by Gilles Stoltz and co-supervised by Vivien Mallet

Several other PhD in progress : Gérard Biau and Vincent Rivoirard [co-]supervise[d] several other PhD students who are not members of our project-team (respectively, Benoît Patra, Clément Levrard, Benjamin Guedj, Svetlana Gribkova, Baptiste Gregorutti, Erwan Scornet, Nedjmeddine Allab for Gérard Biau, and Laure Sansonnet for Vincent Rivoirard)

MSc theses: Gilles Stoltz supervised the MSc theses of Charles-Pierre Astolfi (MVA, ENS Cachan) and Paul Baudin (MVA, ENS Cachan)

8.2.3. Juries

Gérard Biau was a reviewer for the following PhD defenses:

Ekaterina Sergienko, Université Toulouse III, November 2012

Christophe Denis, Université Paris Descartes, November 2012

Emmanuel Onzon, Université Paris VI, November 2012

and a jury member of the following PhD defenses:

Mohamed Achibi, Université Paris VI, July 2012

Moïse Jérémie, Université Paris VI, September 2012

Virgile Caron, Université Paris VI, October 2012

Caroline Meynet, Université Paris-Sud, November 2012

Nicolas Jégou, Université Rennes 2, November 2012

Sarah Ouadah, Université Paris VI, December 2012

Sylvain Girard, Ecole Nationale Supérieure des Mines de Paris, December 2012

Vincent Rivoirard was a jury member for the following habilitation defenses:

Wintenberger Olivier, Université Paris Dauphine, November 2012

Céline Vial, Université Claude Bernard Lyon 1, Décember 2012

Gérard Biau was a reviewer for the following habilitation defense:

Céline Vial, Université Claude Bernard Lyon 1, Décember 2012

and a jury member of the following habilitation defense:

Fadoua Balabdaoui, Université Paris-Dauphine, May 2012

8.3. Popularization

Gilles Stoltz gave a conference for an audience of students of “classes préparatoires” at Mathematic Park (http://www.ihp.fr/fr/seminaire/mathpark-programme).

DOLPHIN Project-Team

9. Dissemination

9.1. Scientific Animation

9.1.1. Organizations of sessions, workshops and conferences

- Conference chair and organization of META'2012 Int. Conf. on Metaheuristics, Sousse, Tunisia, Oct 2012.
- Program chair of NIDISC'2012 workshop on Nature Inspired Distributed Computing in cunjunction with IEEE/ACM IPDPS'2012, Shanghai, China, May 2012.
- Organization of the Theory of Randomized Search Heuristics Workshop (ThRaSH'2012), Lille, France, May 2012
- Organization of the French summer school on evolutionary computation (EA'2012), Quiberon, France, June 2012
- Co-organization of the evolutionary multiobjective optimization session at EURO 2012 (Vilnius, Lithuania)
- Scientific commitee for conference CPAIOR 2012 (Nantes)
- Organization commitee for RIO conference 2012 (Valenciennes)
- Co-guest-editor for a special issue on Evolutionary Multiobjective Optimziation in the Journal of Multi-criteria Decision Analysis (Wiley)
- Co-organizer of the PPSN'2012 workshop on Theoretical Aspects of Evolutionary Multiobjective Optimization, Taormina, Italy, September 1, 2012, together with Gunter Rudolph (TU Dortmund University, Germany)
- Organization of the "Intelligent optimization in Bioinformatics" session at LION'2012 (LION-BIO), Paris, France, January 2012.

9.1.2. Research management

- Manager (Chargé de mission) of supercomputing for Université Lille 1.
- Scientific leader for Lille of the Grid'5000 nation-wide and EGI european-wide grid infrastructures.
- Scientific leader of the challenge "Large scale combinatorial optimization" of the HEMERA nation-wide grid and cloud computing research action (AEN) of Inria.
- Member of the steering committee of the Aladdin-Grid5000 nation-wide technological developement action of Inria.
- Co-leader of the PPF "Supercomputing" at Université Lille 1.
- Coordinator of the High Performance Computing research action at LIFL labs.
- co-leader of the group PM2O of the ROADEF
- secreatary of the association Evolution Artificielle
- Scientific co-leader of the EuroWorking Group on Pricing and Revenue Management.
- Board Member of the ROADEF society.

9.1.3. Reviewing

9.1.3.1. Research projects

- Reviewer of research projects, National Science Center, Poland.
- Expert reviewer for the ANR "Emergence" programme.

- Expert reviewer for the CNRS PEPS "Biologie-Mathématiques-Informatique" programme.
- Expert reviewer BQR university of Paris 13
- Expert reviewer for the ANR "Emergence" programme.

9.1.3.2. Journal papers

- IEEE Transactions on Computers (IEEE TC).
- Journal of Parallel and Distributed Computing (JPDC).
- Parallel Computing.
- Computational Optimization and Applications (COAP, Springer)
- Engineering Optimization (GENO, Taylor & Francis)
- European Journal of Operational Research (EJOR, Elsevier)
- Journal of Heuristics (HEUR, Springer)
- Knowledge-Based Systems (KNOSYS, Elsevier)
- Evolving Systems
- International Journal on Artificial Intelligence Tools (IJAIT)
- Knowledge and Information Systems (KAIS)
- Memetic Computing
- Soft Computing
- Supercomputing
- Artificial Intelligence Journal
- Evolutionary Computation
- IEEE Transactions on Evolutionary Computation
- Journal of Multicriteria Decision Analysis
- Systems, Man and Cybernetics - Part B
- Theoretical Computer Science
- Computers and operations Research
- Transportation Science
- Transportation Research
- Operation Research

9.1.4. Program committees

- IEEE CSE'2012, Track: Distributed and Parallel Computing.
- High Performance Computing & Simulation (HPCS'2012).
- IEEE IPDPS workshops: PCO'2012 and NIDISC'2012.
- Grid'5000 school 2012.
- 6th Learning and Intelligent OptimizatioN Conference, LION 2012 (Paris, France, 2012)
- 12th European Conference on Evolutionary Computation in Combinatorial Optimisation, EvoCOP 2012 (Malaga, Spain, 2012)
- Special Session on Evolutionary Multiobjective Optimization, IEEE Congress on Evolutionary Computation, CEC-EMO 2012 (Brisbane, Australia, 2012)
- Genetic and Evolutionary Computation Conference (Philadelphia, USA, 2012) (GECCO'2012)
- 2nd International Conference on Operations Research and Enterprise Systems, ICORES 2012 (Barcelona, Spain, 2012)

- 13e congrès de la Société francaise de Recherche Opérationnelle et d'Aide à la décision, ROADEF'2012 (angers, France, 2012)
- Genetic and Evolutionary Computation Conference (GECCO'2012)
- Learning and Intelligent OptimizatioN (LION'2012)
- Parallel Problem Solving from Nature (PPSN'2012)
- Simulated Evolution And Learning (SEAL'2012)
- BIOMA'2012 Fifth Int. Conf. on Bioinspired Optimization Methods and their Applications, Bohinj, Slovenia, May 2012.
- GSC'2012 Workshop (Green Supply Chain 2012, Arras, May 2012.
- EvoPar'2012, 1st EvoApplication track on Parallel Architectures and Distributed Infrastructures, Malaga, April 2012.
- VANETs - from Theory to Practice (VTP 2012) workshop held in conjunction with the WoWMoM conference, San Francisco, USA, June 2012.
- Advisory board of EVOLVE'2012, Mexico, Aug 2012.
- SEAL'12 Ninth Int. Conf. on Simulated Evolution and Learning, Hanoi, Vietnam, Dec 2012.
- GPC'2012 Int. Conf. On Grid and Pervasive Computing, Hong Kong, May 2012.
- IC3'2012 Int. Conf. On Contemporary Computing, New Delhi, India, Aug 2012.
- SCCG'2012 Int. Workshop on Soft Computing Techniques in Cluster and Grid Computing Systems in conjunction with Int. Conf. On P2P, Parallel, Grid, Cloud and Internet Computing (3PGCIC), Victoria, Canada, Nov 2012.
- TPNC'2012 Int. Conf. on the Theory and Practice of Natural Computing, Tarragona, Spain, Sept 2012.
- INNOV'2012 Int. Conf. on Communications, Computations, Networks and Technologies, Venice, Italy, Oct 2012.
- HPCS'2012 Int. Conf. on High Performance Computing and Simulation, Madrid, Spain, July 2012.
- GECCO'2012 (Genetic and Evolutionary Computation Conference),Philapdelphia, USA.
- PPSN XII (Parallel Problem Solving Conference), Taormina, Italy, Sept 2012.
- EvoCop'2012 (Int. Conf of Evolcutionary Computation for Combinatorial Optimization), Malaga, Spain, Apr 2012
- EvoBio'2012 (European Workshop on Evolutionary Computation and Bioinformatics), Malaga, Spain, Apr 2013.
- NPC'2012 (IFIP NPC International Conference on Network and Parallel Computing), Gwangju, Korea, Sept 2012
- BICCIB'2012 (International Conference on Biologically Inspired Computing and Computers in Biology), San Diego, USA, May 2012

9.1.5. Phd committees

L. Brotcorne was a jury member of the following PhD thesis:

- Pierre Lebodic, " Variantes non strandards de Problèmes d'optimisation combinatoires", Université de Paris Sud, Sept 2012, Jury member (referee): L. Brotcorne.

C. Dhaenens was a jury member of the following PhD thesis:

- Ahmed Atahran, "Etude et résolution d'un problème de Transport à la demande", Université de Tours, Dec 2012. Jury: C. Dhaenens (referee), C. Lenté, O. Péton, F. Semet, V. T'kindt, R. Wolfer Cavalo.
- Nadarajen Veerapen, "controle autonome d'opérateurs pour la recherche locale", Université d'Angers, Nov 2012. Jury: L. Bordeaux, C. Dhaenens(referee), Y. Hamadi, B. Mazure, F. Saubion.

L. Jourdan was a jury member of the following PhD thesis:

- Daniel de Angelis Cordeiro, "The impact of cooperation on new high performance computing platforms", Université de Grenoble, encadrant : Denis Trystam - Feb 2012 Jury member (referee): L. Jourdan
- Rong-Qiang Zeng *Métaheuristiques Multi-objectif basées sur des voisinages pour l'approximation d'ensembles de Pareto* Université d'Angers, encadrants : Jin-Kao Hao, Matthieu Basseur - July 2012 - Jury member (referee): L. Jourdan
- Cecile Vila, "Optimisation multicritère prenant en compte les préférences de panels d'usagers: Application à l'éclairage de bureaux", ENTPE Lyon, Dec 2012, L. Jourdan (referee).
- Fréderic Lardeux, "Algorithmes autonomes et modélisations de problèmes", Université d'Angers, encadrant : Frederic Saubion - Nov 2012- Jury member (referee): L. Jourdan

N. Melab participate to the following Phd/HDR juries:

- Mohamed Esseghir Lalami, "Contribution à la résolution de problèmes d'optimisation combinatoire: méthodes heuristiques et parallèles", Université de Toulouse, Oct 2012, Jury: N. Melab (referee)
- Mouad Yagoubi, "Optimisation évolutionnaire multi-objectif parallèle : application à la combustion Diesel", Université de Paris Sud XI, July 2012, Jury member: N.Melab.
- Imen Ketata, "Méthode de découverte de sources de données en environnement de grille de données tenant compte de la sémantique", Université Paul Sabatier, Jan 2012, Jury member: N.Melab.

E-G. Talbi participate to the following Phd/HDR juries:

- C. Rego (HDR), "Heuristic search and learning for combinatorial optimization", University of Versailles Saint-Quentin en Yvelines, Jan 2012, Jury : A. Bui, F. Glover, A. Lokketangen, C. Roucairol, E-G. Talbi (reviewer), M. Widmer.
- D. Delahaye (HDR), "Modélisation et optimisation du trafic aérien", Ecole Nationale d'Aviation Civile de Toulouse, Mar 2012, Jury : J-K. Hao, M. Mongeau, M. Sevaux, M. Schoenauer, E-G. Talbi (reviewer).
- Jesica De Armas Adrian, "Cutting problems: Parallel exact and approximate approaches for mono-objective and multi-objecive formulation", University of La Laguna, Tenerife, Spain, Apr 2012, Reviewer.
- I. Michael Scriven, "Derivation and application of approximate electromagnetic noise models using decentralized parallel particle swarm optimization", Griffith University, Brisbane, Australia, July 2012, Jury : A. Lewis, E-G. Talbi, J-W. Lu.
- Tony Wauters, "Reinforcement learning enhanced heuristic search for combinatorial optimization", University of Gant, Belgium, Nov 2012, Jury: D. Cattrysse, P. De Causmaecker, A. Nowé, E-G. Talbi, K. Tuyls, G. Vanden Berghe, K. Verbeeck
- Afetah Moghaddam, "Production scheduling - Unavailability of the resources", Université Technologique de Troyes, Troyes, France, Nov 2012, Jury: R. Aggoune, H. E. Aguirre, L. Amodeo, N. Sauer, E-G. Talbi, J. Teghem, F. Yalaoui
- Yuhan Guo, "Metaheuristics for solving large size long-term car pooling problem and an extension", Université d'Artois, Béthune, France, Nov 2012. Jury: V-D. Cung, G. Goncalves, J-K. Hao, T. Hsu, M-J. Huguet, E-G. Talbi. President.
- Carlos Segura Gonzalez, "Parallel optimization schemes: A hybrid scheme based on hyperheuristics and evolutionary computation", Dec 2012, University of La Laguna, Tenerife, Spain. Reviewer.
- S. Puechmorel (HDR), "Modèles dynamiques en gestion du trafic aérien", Dec 2012, Ecole Nationale d'Aviation Civile de Toulouse, Reviewer.

9.1.6. Commission

- President of the Technological Development Commission (CDT) of Inria Lille.
- Member of the admission committee of associate professors (COS- MCF) in computer science at Université du Littoral - Côte d'Opale.
- Expert member for the AEQES Belgium agency for the evaluation of teaching - evaluation of Bachelor and Master in computer science and engineering teaching at UMONS, UCL and ULB universities.
- Presidence of the CER commission of the Lille Inria center (Commission des Emplois de Recherche).
- Member of the admission committee of associate professors (COS- MCF) in operations research at Université de Tours.
- Member of the admission committee of associate professors (COS- MCF) in operations research at Université de Grenoble.
- Member of the admission committee of associate professors (COS- MCF) in Applied Mathematics at Université Lille 3.
- Invited Member on the Inria CR Evaluation Commission.
- Invited Member of the Inria COST GTRI.
- Président du jury du prix de la TSL (Transportation and Logistics Sections) Informs 2012.
- Membre de la commission de selection des Bourses Eole attribuées par le réseau Franco Néerlandais
- Déléguée Scientifique des Relations Internationale du Centre de Lille

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence : C. Dhaenens, Algorithmics, 30h, L3, Engineering school Polytech'Lille.

Licence : C. Dhaenens, Graphs and combinatorics, 90h, L3, Engineering school Polytech'Lille.

Licence : L. Jourdan, Data mining, 25h, L1, Université de Lille 1, France,

Licence: L. Jourdan, Initiation à la programmation, 54h, L1, Université de Lille 1, France

Licence : L. Jourdan, Programming, 54h, L1, Université de Lille 1, France

Licence : F. Clautiaux, Object oriented programming, 80h, DUT informatique, Université de Lille 1, France

Licence : F. Clautiaux, Mathematical tools for modelling, 64h, DUT informatique, Université de Lille 1, France

Licence : F. Clautiaux, Object oriented design, 48h, DUT informatique, Université de Lille 1, France

Licence : F. Clautiaux, Operating systems, 48h, DUT informatique, Université de Lille 1, France

Licence: A. Liefooghe, Algorithmic and Data structure, 36h, L2, Université de Lille 1, France

Licence: A. Liefooghe, Algorithmic - Operations Research, 36h, L3, Université de Lille 1, France

Master: A. Liefooghe, Decision Support Systems mining, 24h, M1, Université de Lille 1, France,

Master: A. Liefooghe, Databases, 30h, M1, Université de Lille 1, France

Master: A. Liefooghe, Object-oriented Design and Programming, 52h, M1, Université de Lille 1, France

Master: A. Liefooghe, Combinatorial Optimization, 10h, M2, Université de Lille 1, France

Master: N. Melab, Co-head of the supercomputing (Calcul Scientifique) master 2 at Université Lille 1.

Master: N. Melab: Operations Research, 82h, M2, Université Lille 1

Master: N. Melab, Supercomputing, 55h, M1 et M2, Université Lille 1

Master: C. Dhaenens, Operations Research, 70h, M1, , Engineering school Polytech'Lille.

Master: E-G. Talbi, Operations research, 40h, M1, Polytech'Lille, France

Master: E-G. Talbi, Data mining, 35h, M2, Polytech'Lille, France

Master: E-G. Talbi, Advanced Optimization, M2, Polytech'Lille, France

Master: L. Jourdan, Informatique Décisionnelle, 70h, M1 et M1 FA , Université de Lille 1, France,

Master: L. Jourdan, Mise à niveau en informatique décisionnelle et en recherche opérationnelle 25h, M1, Université de Lille 1, France

Administration: head of apprenticeship in Computer Sciences at UFR IEEA

Master: B. Derbel, co-supervisor of the Master 2 MOCAD (Complex Models, Algorithms, Data)

Master: B. Derbel, Combinatorial Optimization, 35h, M2, Université de Lille 1, France

Master: B. Derbel, Grid Computing, 16h, M2, Université de Lille 1, France

Master: B. Derbel, Parallel and Distributed Programming, 12h, M1, Université de Lille 1, France

Master: B. Derbel, Advanced Object Programming, 52h, M1, Université de Lille 1, France

Master: B. Derbel, Design of Distributed Applications, 60h, M1, Université de Lille 1, France

9.2.2. Supervision

PhD soutenues :

PhD : Ahcène Bendjoudi, Hierarchical parallel branch and bound on large scale Grids, June 2012, E-G. Talbi and N. Melab.

PhD in progress :

- S. Afsar, Bilevel approaches for energy pricing problems, Oct 2011, L. Brotcorne
- O. Bahri, Multi-objective optimization and possibility theory, Dec 2012, E-G. Talbi, N. Ben Amor
- M. Bué, Défintion d'offres de services en tenant compte du comportement de réservation hôtelière des clients , Oct 2012, L. Brotcorne and F. Clautiaux
- I. Chakroun, Méthodes B&B parallèles sur GPU, N.Melab.
- N. Dahmani, Multi-objective packing problems, Sept 2013, F. Clautiaux and E-G. Talbi
- M. Diaby, Yield Management and Supply chain Management, Sept 2010, L. Brotcorne and E-G. Talbi
- M. Djamai, Méthodes exactes arborescentes pair-à-pair sur grilles de calcul, Sept 2009, B. Derbel et N.Melab.
- S. Dufourny, Optimization of economic decisions in a competitive business management simulator, Oct 2011, C. Dhaenens
- N. Dupin, Robust scheduling of nuclear outages, Apr 2011, M. Porcheron, E-G. Talbi, F. Vanderbeck
- J. Hamon, Analysis of data from high throughput genotyping: cooperation between statistics and combinatorial optimization, C. Dhaenens
- J. Jacques, Knowledge extraction by optimization methods for improving the process of inclusion in clinical trials, Oct 2010, C. Dhaenens and L. Jourdan
- S. Jacquin, Hybrid approaches for optimization problems under uncertainty, Oct 2012, E-G. Talbi, L. Jourdan
- Y. Kessaci, Métaheuristiques multiobjectifs pour l'ordonnancement d'applications sur Clouds, Oct 2009, N. Melab and E-G. Talbi.
- F. Legillon, Métaheuristiques pour l'arbitrage d'applications sur fédérations de Clouds, Oct 2011, N. Melab and E-G. Talbi.

- R. Leroy, Parallel Tree-based Exact Algorithms using Heterogeneous Many and Multi-core Computing for Solving Challenging Problems in Combinatorial Optimization, Oct 2012, N.Melab.
- K. Seridi, Métaheuristiques multiobjectives pour le biclustering, Oct 2009, L. Jourdan and E-G. Talbi
- A. Sthathakis, Satellite payload reconfiguration optimization, Oct 2011, P. Bouvry, G. Danoy, E-G. Talbi
- B. Tounsi, Bi-level modeling and solving of transportation problems, Oct 2012, L. Brotcorne
- T-D. Tran, Benchmarking Continuous Multiobjective Optimization Algorithms, Dec 2012, D. Brockhoff and E-G. Talbi.
- T-T. Vu, Méthodes exactes pair-à-pair en environnement virtualisé volatile et à large échelle, Oct 2011, B. Derbel et N.Melab.

GEOSTAT Project-Team

8. Dissemination

8.1. Scientific Animation

- H. Yahia is a member of the editorial board of Elsevier's journal *Digital Signal Processing* (http://www.journals.elsevier.com/digital-signal-processing/editorial-board).
- H. Yahia is a member of the editorial board of *Frontiers in fractal physiology* (http://www.frontiersin.org/Fractal_Physiology/editorialboard).
- H. Yahia is a member of CNU's section 61 (CNU: *Conseil National des Universités*).

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Master : K. Daoudi was invited by the Moroccan CNRST within the FINCOME'2012 program (http://www.fincome.cnrst.ma/) to give a 20 hours lecture on speech processing at the Master2 InfoTelecom of the faculty of sciences, Rabat (http://www.fsr.ac.ma/MIT/).

8.2.2. Supervision

PhD : R. Jourani, title: *reconnaissance automatique du locuteur par GMM à grande marge*, co-supervised between University Paul Sabatier (Toulouse, France) and Rabat-Agdal University (Morroco), defended September 6th, 2012, supervisors: K. Daoudi and R. André-Obrecht.

PhD in progress : V. Khanagha, title: *novel multiscale methods for nonlinear speech analysis using the Microcanonical Multiscale Formalism*, PhD started in 2009, supervisors: H. Yahia and K. Daoudi, to de defended on January 16th, 2013.

PhD in progress : S. Maji, title: *méthodes multiéchelles en traitement du signal pour l'optique adaptative*, PhD started in 2010, supervisor: H. Yahia.

PhD in progress : H. Badri , title: *sparse representation and gradient manipulation: application to multidimensional signals, natural and synthetic*, PhD started in 2012, supervisors: H. Yahia, D. Aboutajdine.

PhD in progress : A. Tamim , title: *image procesing for the segmentation and temporal evolution of moroccan upwelling*, PhD started in 2010, supervisors: K. Daoudi, D. Aboutajdine, H. Yahia.

8.2.3. Juries

- H. Yahia was a member of Mr. Binbin Xu's PhD jury. The PhD was defended on July 11th, 2012, at Université de Bourgogne. Title: *étude de la dynamique des ondes spirales à l'échelle cellulaire par modèles expérimental et numérique*. The jury was composed of: Professor O. Meste, Dr. H. Yahia, Professors V. Kazantzev, M. Nadi, J.-M. Bilbault, S. Binczak, Dr. G. Laurent and Dr. S. Jaquir.
- H. Yahia and K. Daoudi were members of H. Badri's master internship jury. The defence took place on October, 13th, 2012, at Rabat University, Morroco.

8.3. Diffusion

- H. Yahia was an invited speaker at the EGU (European Geophysical Association) General Assembly, held in Vienna, Austria, from April 22th to April 27th, 2012. Session NP3.1 ("Nonlinear, scaling and Complex Physical and Biogeophysical Processes in the Atmosphere and Ocean") [14].

- K. Daoudi was invited from April 11th to April 22th, 2012, by Concordia University (Montreal, Canada), for a visit to Concordia and Sherbrooke universities. K. Daoudi has given a talk at Concordia on April 16th.
- K. Daoudi was invited from September 13th to September 15th, 2012, by the Speech Group at Microsoft Research (Redmond, USA) and has given a talk on September 14th on the subject of nonlinear signal processing for speech.
- H. Yahia participated to the CNU session held in Saint Malo, France, on January, 23th, 24th, 2012.
- H. Yahia was invited by F. Schmidt, head of the LOG (Laboratoire d'Océanologie et de Géosciences, UMR CNRS 8187 and Université du Littoral), to make a lecture on the subject: *structure multiéchelle des signaux complexes et circulation océanique*, on June, 29th, 2012.

MISTIS Project-Team

8. Dissemination

8.1. Scientific Animation

Since September 2009, F. Forbes is head of the committee in charge of examining post-doctoral candidates at Inria Grenoble Rhône-Alpes ("Comité des Emplois Scientifiques").

Since September 2009, F. Forbes is also a member of the Inria national committee, "Comité d'animation scientifique", in charge of analyzing and motivating innovative activities in Applied Mathematics.

Florence Forbes is a member of an INRA committee (CSS MBIA) in charge of evaluating INRA researchers once a year.

F. Forbes is part of an INRA (French National Institute for Agricultural Research) Network (MSTGA) on spatial statistics.

F. Forbes and S. Girard were elected as members of the bureau of the "Analyse d'images, quantification, et statistique" group in the Société Française de Statistique (SFdS).

S. Girard is associate editor of the international journal "Statistics and Computing".

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Stéphane Girard

Master : Statistique inférentielle avancée, 45h, M1, Ensimag (Grenoble INP), France.

Florence Forbes

Master : Mixture models and EM algorithm, 12h, M2, UFR IM2A, Université Grenoble I, France.

M.-J. Martinez is faculty members at Univ. Pierre Mendès France, Grenoble II.

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

F. Enikeeva is on a half-time ATER position at Ensimag, Grenoble INP.

C. Bakhous and J. El Methni are both moniteur at University Joseph Fourier.

PhD & HdR

PhD in progress : Jonathan El Methni, Modèles en statistique des valeurs extrêmes, since October, 2010, Stéphane Girard

PhD in progress : Christine Bakhous, Problèmes de sélection de modèles en IRM fonctionnelle, since November, 2010, Florence Forbes and Michel Dojat

PhD in progress : Gildas Mazo, Modèles spatiaux en statistique des valeurs extrèmes, since October, 2011, Florence Forbes and Stéphane Girard

PhD in progress : El Hadji Deme, Réduction du biais en statistique des valeurs extrèmes, since October, 2009, Stéphane Girard

PhD in progress : Seydou-Nourou Sylla, Modélisation statistique pour l'analyse de causes de décès décrites par autopsie verbale en milieu rural africain, since October, 2012, Stéphane Girard

8.2.2. Juries

Stéphane Girard was a member of the Strasbourg university committee in charge of examining applications for assistant professor in 2012.

Florence Forbes was also a member of an INRA committee in charge of examining applications for junior researcher positions in 2012 at dept MBIA of INRA.

F. Forbes was involved in the PhD committees of

- El Ghali Lazrak from Inria Nancy and INRA Aster Mirecourt, Université de Lorraine in October 2012 (reviewer).
- Alexandre Janon from Inria team MOISE and LJK Grenoble. November 2012 (Examinateur).
- Mahdi Bagher from Inria team Maverick and LJK Grenoble. November 2012 (Examinateur).

F. Forbes was also involved in the HDR committee of Michael Blum, CR CNRS at TimC in Grenoble. December 2012 (Examinateur).

MODAL Project-Team

9. Dissemination

9.1. Scientific Animation

Since '12, C. Biernacki participates to the international group "IFCS Committee on Initiative to Stimulate Benchmarking in Classification Research". Since '12, C. Biernacki is the president of the data mining and learning group of the French statistical association (SFdS) http://www.sfds.asso.fr/. Since '11, he is leader of the team "Probability & Statistics" of the Laboratory of mathematics of U. Lille 1 http://math.univ-lille1.fr/.

Guillemette Marot organizes, in the context of the PPF bioinfo Lille 1, two scientific meetings:

- Phylogénie (35 people), Lille 1, june 2012, http://www.lifl.fr/~touzet/PPF/phylogenie12.html
- Analyse bioinformatique des données de métagénomique (80 people expected), Pasteur Lille, december 2012, http://www.lifl.fr/~touzet/PPF/metagenomique12.html

9.1.1. Editorial activities

C. Biernacki belongs to the program committe of "Extraction et gestion des connaissances" in 2012 and 2013 and to the program comity of "Journées Françaises de Statistique" in 2013. He organised a special session "clustering of mixed data" in the conference SFdS 2012 in Brussels. Since '10, he is an Associate Editor of the journal "Case Studies in Business, Industry and Government Statistics" (CSBIGS) http://legacy.bentley.edu/csbigs/.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence : Cristian Preda, Probabilités, 36h, L3, École Polytechnique Universitaire de Lille, U. Lille 1, France.

Licence : Julien Jacques, Statistique Inférentielle, 50h, L3, École Polytechnique Universitaire de Lille, U. Lille 1,France

Licence : Guillemette Marot, Biostatistique, 18h, L1, U. Lille 2, France

Licence : Alain Célisse, Algèbre, 80h, L2, U. Lille 1, France

Licence : Alain Célisse, Mathématiques pour l'Informatique, 122h, L1, U. Lille 1, France

Licence : Serge Iovleff, Analysis, 24h, U. Lille 1, France.

Licence : Serge Iovleff, Probability and Statistics, 24h, U. Lille 1, France.

Licence : Serge Iovleff, Discrete mathematics and algebra, 72h, U. Lille 1, France

Licence : Serge Iovleff, Graphes and Languages, 80h, U. Lille 1, France

Licence : Serge Iovleff, Algebra, Geometry and Arithmetic, 32h, U. Lille 1, France

Licence : Serge Iovleff, Options of Mathematics, 48h, U. Lille 1, France

Licence : Vincent Vandewalle, Linear algebra, 91h, Simulation Techniques, 16h, Descriptive statistics, 62h, Probabilities, 44h, L1 , U. Lille 2, France

Licence : Vincent Vandewalle, Analysis, 24h, Project management, 9h, L2, U. Lille 2, France

Licence : Vincent Vandewalle, Data analysis, 30h, L3, U. Lille 2, France

Licence : Matthieu Marbac-Lourdelle, Data analysis, 48h, Institut Superieur d'Agriculture, U. catholique de Lille, France.

Master : Cristian Preda, Statistique Exploratoire, 40h, M1, École Polytechnique Universitaire de Lille, U. Lille 1,France.

Master : Cristian Preda, Functional Data Analysis, 18h, M2, U. Lille 1, France.

Master : Julien Jacques, Statistique Exploratoire, 40h, M1, École Polytechnique Universitaire de Lille, U. Lille 1,France.

Master : Julien Jacques, Modélisation Statistique, 30h, M1, École Polytechnique Universitaire de Lille, U. Lille 1,France

Master : Julien Jacques, Séries Temporelles, 25h, M2, École Polytechnique Universitaire de Lille, U. Lille 1, France

Master : Guillemette Marot, Biostatistique, 48h, M1, U. Lille 2, France

Master : Alain Célisse, Statistique Fondamentale, 45h, M2, U. Lille 1, France

Doctorat : Cristian Preda, Functional Data Analysis, 10h, M2, Department of Statistics, University of Granada, Spain.

Christophe Biernacki was in a one year delegation at Inria with no teaching. From '05, he is the head of the M2 Ingénierie Statistique et Numérique http://mathematiques.univ-lille1.fr/Formation/.

Vincent Vandewalle is head of the DUT Statistique et Informatique Décisionnelle, http://iut.univ-lille2.fr/fr/le-departement-stid.html

9.2.2. Supervision

HdR : Julien Jacques, Contribution to statistical learning of complex data using generative models, Université Lille 1, November 28, 2012.

PhD in progress : Alexandru Amarioarei, Statistics, Scan statistics and applications, started in 2010, Cristian Preda supervisor

PhD in progress : Michael Genin, Statistics, Scan statistics and epidemiology, started in 2010, Cristian Preda and Alain Duhamel (CEREM, U. Lille 2) supervisors

PhD in progress : Julie Hamon, Analysis of data from high throughput genotyping: cooperation between statistics and combinatorial optimization, started in 2010, Julien Jacques and Clarisse Dhaenens (DOLPHIN Inria Lille team-project) supervisor

PhD in progress : Loïc Yengo, Simultaneous Variables Clustering and Selection in Regression Models, started in 2010, Christophe Biernacki and Julien Jacques supervisors

PhD in progress : Clément Thery, Classification supervisée ou semi-supervisée des bases de grande dimension, avec variables qualitatives et quantitatives, started in 2011, Christophe Biernacki supervisor

PhD in progress : Matthieu Marbac-Lourdelle, Generatives models taking into account the correlation between variables, started in 2011, Christophe Biernacki and Vincent Vandewalle supervisors

REALOPT Project-Team

9. Dissemination

9.1. Scientific Animation

9.1.1. Organization of workshops

- Arnaud Pêcher was in the organizing committee of the Bordeaux Graph Workshop 2012.
- Pierre Pesneau is member of the organizing committee of the working group "Polyhedra and Combinatorial Optimization" affiliated to the French operations research society (ROADEF) and the operations research group of CNRS. The purpose of this working group is to promote the field of polyhedra in the research domain of combinatorial optimization. To this aim, the group organizes every even years a biennial international symposium on combinatorial optimization (ISCO 2010 in Tunisia, ISCO 2012 in Greece, ISCO 2014 will be held in Portugal) and every odd years the national Polyhedra and Combinatorial Optimization Days. Both of them are preceded by a doctoral spring school.

9.1.2. Invitations to conferences

- Arnaud Pêcher, *How unique is Lovász's theta function?*, 2012 International Conference on Graph Theory, Combinatorics and Applications, Jinhua, Chine, 2012
- Francois Vanderbeck had an "invited talk" at the *International Workshop on Column Generation*, Montréal 2012. He was also an *Invited speaker* at the *Workshop on Integer Programming*, Valparaiso, Chile, March 2012.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master "Ingénierie Mathématique, Statistiques, et Economique": "Optimisation dans les graphes", University of Bordeaux, France.

"Modèles de Flot et Combinatoire", 45 hetd, M1 (Gautier Stauffer)

"Optimisation dans les graphes", 15h, M1, (Arnaud Pêcher)

"Optimisation combinatoire", 30 hetd, M1, (Andrew Miller, Francois Vanderbeck)

"Outils et logiciels d'optimisation", 14 hetd, M1, (Andrew Miller)

"Programmation linéaire", 60 hetd, M1, (Andrew Miller, Pierre Pesneau)

"Programmation linéaire", 30 hetd, M1 (Pierre Pesneau)

"Introduction à la Programmation en Nombres Entiers", 15 hetd, M1 (Pierre Pesneau)

"Programmation Orienté Objet", 15 hetd, M1 (Pierre Pesneau)

"Introduction à la Programmation par Contraintes", 30 hetd, M2, (Ruslan Sadykov).

"Gestion des opérations et Planification de la Production", 30 hetd, M2, (Ruslan Sadykov).

Other Masters:

Enseirb, Computer Sciences: "Recherche Opérationnelle", 37 hetd, 2nd year, Institut Polytechnique de Bordeaux, France (Pierre Pesneau, Francois Vanderbeck)

9.2.2. Supervision

PhD: Petru Valicov, “Algorithmes de graphes pour les problèmes d’ordonnancement”, Juillet 2012, A. Pêcher, M. Montassier, E. Sopena

PhD in progress: Sagnik Sen, “Graphes et télécommunications”, January 2011, E. Sopena, A. Pêcher, A. Raspaud.

PhD in progress: Nastaran Rahmani, “Planning and Routing via decomposition approaches”, April 2011, R. Sadykov, F. Vanderbeck

PhD in progress: Nicolas Dupin, “Scheduling Maintenance of Nuclear Plants in Power Production Planning”, Mai 2011, A. Miller, R. Sadykov, E. Talbi, F. Vanderbeck.

9.2.3. Juries

- Francois Vanderbeck was a member of the PhD jury of Sergey Kovalev, at Ecole des mines de St Etienne.

9.2.4. Administrative Responsabilities

Each member of the team is quite involved in teaching in the thematic specialties of the project, including in the research track of the Masters in applied mathematics or computer science and an Operations Research Track in the computer science department of the Engineering school ENSEIRB-MATMECA. Moreover, we are largely implied in the organization of the curriculum:

- Arnaud Pêcher was the head of IUT Computer Science’s special year, since 2010.
- Francois Vanderbeck has succeeded to Andrew Miller as the head of the Master Speciality in Operations Research. He is aslo a member of the council of the laboratory of mathematics of Bordeaux (IMB) and its scientific committee.
- Pierre Pesneau is elected (since March 2011) to the council of the laboratory of mathematics of Bordeaux (IMB) and (since March 2012) to the council of the department of Mathematics and Computer Science of the University of Bordeaux.
- Ruslan Sadykov is elected (since September 2012) to the research council of the laboratory of mathematics of Bordeaux (IMB).

SELECT Project-Team

9. Dissemination

9.1. Scientific Animation

9.1.1. Editorial responsibilities

Participants: Gilles Celeux, Pascal Massart, Jean-Michel Poggi.

- Gilles Celeux is Editor-in-Chief of *Statistics and Computing* and of *Journal de la SFdS*. He is Associate Editor of *CSBIGS* and *La Revue Modulad*.
- Pascal Massart is Associated Editor of *Annals of Statistics*, *Confluentes Mathematici*, and *Foundations and Trends in Machine Learning*.
- Jean-Michel Poggi is Associated Editor of *Journal of Statistical Software*, *Journal de la SFdS* and *CSBIGS*.

9.1.2. Invited conferences

Participants: Gilles Celeux, Pascal Massart, Jean-Michel Poggi.

- Gilles Celeux was invited speaker to the Method and Research meetings at UNIL (Lausanne) and to the Summer Model-Based Clustering working group in Guelp.
- Pascal Massart has given the "Le Cam lecture" at the last worldwide IMS-Bernoulli meeting in Istambul.
- Jean-Michel Poggi was invited speaker at SIS 2012, and at 5th International Conference of the ERCIM Working Group on Computing and Statistics, Oviedo, Spain.

9.1.3. Scientific animation

Participants: Gilles Celeux, Erwan Le Pennec, Pascal Massart, Jean-Michel Poggi.

- Gilles Celeux is member of the CSS of INRA.
- Gilles Celeux was a member of the scientific committee of SMPGD (Statistical Methods for Post Genomics Data).
- Erwan Le Pennec is a member of the Board of the MAS group of the SMAI (french SIAM).
- Erwan Le Pennec is a member of the Labex AMIES (Agence pour les Mathématiques en Interaction avec les Entreprises et la Société).
- Erwan Le Pennec and Pascal Massart are members of the C.N.U. (section 26).
- Pascal Massart is a senior member of the I.U.F.
- Pascal Massart is a member of the scientific council of the French Mathematical Society.
- Pascal Massart is a member of the scientific council of the Mathematical Department of the Ecole Normale Supérieure de Paris.
- Pascal Massart was a member of the scientific committee of the European Meeting of Staticians in Piraeus.
- Jean-Michel Poggi is President of the French statistical society (SFdS).
- Jean-Michel Poggi is Vice-President of FENStatS «Federation of European National Statistical Societies»
- Jean-Michel Poggi is Member of the Program Commitee of WIPFOR "Workshop on Industry & Practices for Forecasting", June 5-7, 2013, Paris

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master: Gilles Celeux, modèles à structure cachée ISUP 3ème année (Université Paris 6) 20 heures

Master: Gilles Celeux, modèles pour la classification M2 probabilités et statistique, Université Paris Sud, 24 heures

Master: Erwan Le Pennec, Méthode Parcimonieuse en Statistique, 30h, Université Paris Sud, France

Master: Erwan Le Pennec, Méthodes d'ondelettes, 20h, M2, Université Paris Diderot, France

Master: Erwan Le Pennec, Analyse Spectrale, 18h, M1, Ponts Paristech, France

Master: Jean-Michel Poggi, Ondelettes et applications (Master 2 Ingénierie Mathématique, Université Paris Sud) 30 heures

Master: All the other SELECT members are teaching in various courses of different universities and in particular in the M2 "Modélisation stochastique et statistique" of University Paris-Sud.

9.2.2. Supervision

PhD : Jairo Cugliari Duhalde, Prévision d'un processus à valeurs fonctionnelles. Application à la consommation d'électricité, 22/11/2011 at Paris XI Orsay, J.-M. Poggi and Anestis Antoniadis (Univ. Joseph Fourier, Grenoble)

PhD: Caroline Meynet, 2009, Pascal Massart

PhD in progress: Vincent Brault, 2011, Gille Celeux and Christine Keribin

PhD in progress: Claire Caillerie, 2008, Pascal Massart and Frédéric Chazal

PhD in progress: Rémi Fouchereau, 2011, Gille Celeux

PhD in progress: Shuai Fu, 2010, Gille Celeux

PhD in progress: Émilie Devivjer, 2012, Pascal Massart and Jean-Michel Poggi

PhD in progress: Clément Levrard, 2009, Pascal Massart and Gérard Biau (UPMC)

PhD in progress: Farouk Mhamdi, 2012, Jean-Michel Poggi and Meriem Jaïdane (ENIT Tunisie)

PhD in progress: Lucie Montuelle, Sélection de modèles et mélange de gaussiennes en imagerie hyperspectrale, 2011, Erwan Le Pennec

PhD in progress: Nelo Molter Magalães, 2011, Pascal Massart

PhD in progress: Solenne Thivin, 2012, Erwan Le Pennec

PhD in progress: Vincent Thouvenot, 2012, Jean-Michel Poggi and Anestis Antoniadis (Univ. Joseph Fourier, Grenoble)

9.3. Popularization

Erwan Le Pennec takes care of a Math en Jeans group at lycée Joliot Curie from Nanterre.

Vincent Brault takes care of a Math en Jeans group at lycée Blaise Pascal from Orsay and is part of the organizing committee of the Orsay conference for April 2013

SEQUEL Project-Team

9. Dissemination

9.1. Scientific Animation

9.1.1. Awards

Shih-Chieh Huang, supervised by Rémi Coulom received the Taiwan Computer Game Association PhD Thesis Award during the 2012 Taiwan Computer Game Workshop on June 30, 2012.

9.1.2. Tutorials

- *A. Lazaric* and *M. Ghavamzadeh* co-chaired a tutorial on *Statistical Learning Theory in Reinforcement Learning and Approximate Dynamic Programming* at the Twenty-Ninth International Conference on Machine Learning (ICML), 2012, which was held in Edinburgh, Scotland in June. Here is the webpage of the tutorial
  http://chercheurs.lille.inria.fr/~ghavamza/ICML2012-Tutorial.html

9.1.3. Workshops and Schools

- *J. Mary* co-organized the "New Challenges for Exploration and Exploitation" workshop and competition together with A. Garivier, L. Li, R. Munos, O. Nicol, R. Ortner, and Ph. Preux.
- *H. Kadri* was the main organizer of the ICML workshop on "Object, functional and structured data: towards next generation kernel-based methods" along with Fl. d'Alché-Buc, M. Pontil, and A. Rakotomamonjy.
- *E. Duflos* co-organized the *one-day workshop on Non Parametric Bayesian for Signal and Image Processing* () in Paris (in the frame of the GDR ISIS), with François Caron. The guest speaker was Mickael Jordan from the University of Berkeley.

9.1.4. Invited Talks

- *P. Chainais*, Journées Bordelaises d'Analyse Mathématique des Images, Bordeaux, Host: Prof. J.F. Aujol & C. Dossal (November 2012).
- *P. Chainais*, Nat'Images, Nice, Host: G. Peyré (July 2012).
- *M. Ghavamzadeh*, University of Waterloo, Canada - AI Seminar, Host: Prof. Pascal Poupart (2012).
- *M. Ghavamzadeh*, McGill University, Canada - School of Computer Science, Host: Prof. Joelle Pineau (2012).
- *M. Ghavamzadeh*, University of Alberta, Canada - AI Seminar, Host: Prof. Csaba Szepesvári (2012).
- *M. Ghavamzadeh*, Workshop on "Large-Scale Online Learning and Decision-Making", London (2012).
- *D. Ryabko*, The Fifth Workshop on Information Theoretic Methods in Science and Engineering (WITMSE 2012), Amsterdam, The Netherlands, Aug. 2012s.
- *Ph. Preux*, Université de Clermont-Ferrand, June 2012.
- *M. Valko*, University of Oxford, UK, Host: David Silver (April 2012).
- *M. Valko*, Large-scale Online Learning and Decision Making, UK, Host: Prof. Marc Tommasi (April 2012).
- *M. Valko*, LAMPADA workshop, France, Host: Jakub Zavodny (July 2012).
- *A. Lazaric*, Politecnico di Milano, Italy - AI Seminar, Host: Prof. Nicola Gatti (April 2012).

9.1.5. Review Activities

- ***Participation to the program committees of international conferences***
  - International Conference on Patter Recognition Applications and Methods (ICPRAM 2012)
  - Algorithmic Learning Theory (ALT 2012)
  - AAAI Conference on Artificial Intelligence (AAAI 2012)
  - European Workshop on Reinforcement Learning (EWRL 2012)
  - Annual Conference on Neural Information Processing Systems (NIPS 2012)
  - International Conference on Artificial Intelligence and Statistics (AISTATS 2012)
  - European Conference on Machine Learning (ECML 2012)
  - International Conference on Machine Learning (ICML 2012 and 2013)
  - International Conference on Uncertainty in Artificial Intelligence (UAI 2012)
  - French Conference on Planning, Decision-making, and Learning in Control Systems (JFPDA 2012)
  - FUSION 2012
- ***International journal and conference reviewing activities*** (in addition to the conferences in which we belong to the PC)
  - IEEE Transactions on Image Processing
  - Journal of Statistical Physics
  - Digital Signal Processing
  - IEEE Statistical Signal Processing SSP'2012
  - European Signal Processing Conference EUSIPCO 2012
  - IEEE Transactions on Information Theory
  - Annual Conference on Neural Information Processing Systems (NIPS 2012)
  - International Conference on Machine Learning (ICML 2012)
  - European Conference on Machine Learning (ECML 2012)
  - Uncertainty in Artificial Intelligence (UAI 2012)
  - Machine Learning Journal (MLJ)
  - Journal of Machine Learning Research (JMLR)
  - Journal of Artificial Intelligence Research (JAIR)
  - IEEE Transactions on Automatic Control (TAC)
  - IEEE Transactions of Signal Processing
  - Journal of Autonomous Agents and Multi-Agent Systems (JAAMAS)

9.1.6. Evaluation activities, expertise

- *P. Chainais* is a grant proposal reviewer for the ANR SIMI2.
- *Ph. Preux* is expert for the AERES, ANR, ANRT, and CNRS.
- *M. Ghavamzadeh* is in the Editorial Board Member of Machine Learning Journal (MLJ, 2011-present).
- *M. Ghavamzadeh* is in the Steering Committee Member of the European Workshop on Reinforcement Learning (EWRL, 2011-present).
- *P. Preux*, *R. Gaudel* and *J. Mary* are experts for *Crédit Impôt Recherche* (CIR).
- *E. Duflos* is a project proposal reviewer for ANR.

9.1.7. Other Scientific Activities

- *R. Munos* is Vice Président du Comité des Projets at Inria Lille-Nord Europe since September 2011.
- *D. Ryabko* is a member of COST-GTRI committee at Inria.
- *D. Ryabko* is a general advisor at Inria Lille.
- *R. Gaudel* manages the proml diffusion list.
- *E. Duflos* is Director of Research of Ecole Centrale de Lille since September 2011.
- *E. Duflos* is the Head of the Signal and Image Team of LAGIS (UMR CNRS 8219) since January 2012.
- *R. Gaudel* is board member of LIFL.

9.2. Teaching

- *A. Lazaric*, PhD, “Advanced topics in Machine Learning”, 24 hours, Department of Electronics and Informatics, Politecnico di Milano (Italy).
- *P. Chainais*, Ecole Centrale de Lille, “Machine Learning”, 36 hours, 3rd year.
- *P. Chainais*, Ecole Centrale de Lille, “Wavelets and Applications", 24 hours, 2nd year.
- *P. Chainais*, Ecole Centrale de Lille, “Introduction to Matlab", 16 hours, 3rd year.
- *P. Chainais*, Ecole Centrale de Lille, “Signal processing", 22 hours, 1st year.
- *P. Chainais*, Ecole Centrale de Lille, “Data Compression", 16 hours, 2nd year.
- *P. Chainais* is Responsible for a new 3rd year program called Decision making & Data analysis.
- *Ph. Preux*, “Decision under uncertainty”, 46 hours, M2, Master in Computer Science, Université de Lille 1.
- *R. Munos*, Master: “Introduction to Reinforcement Learning”, 30 hours, M2, Master “Mathematiques, Vision, Apprentissage”, ENS Cachan.
- *R. Gaudel*, Master: “Data Mining”, 24 hours, M2, Master “Mathematiques et Informatique Appliqués aux Sciences Humaines et Sociales”, Université Lille 3.
- *R. Gaudel*, Master: “Web Mining”, 24 hours, M2, Master “Mathematiques et Informatique Appliqués aux Sciences Humaines et Sociales”, Université Lille 3.
- *R. Gaudel*, Licence: “Programmation”, 2×16 hours, L1, Licence “Mathematiques et Informatique Appliqués aux Sciences Humaines et Sociales”, Université Lille 3.
- *R. Gaudel*, Licence: “Information and Communication Technologies”, 2×12 hours, L1, Licence “Sociologie, Histoire, Développement Social”, Université Lille 3.
- *R. Gaudel*, Licence: “Artificial Intelligence”, 27 hours, L2, Licence “Mathematiques et Informatique Appliqués aux Sciences Humaines et Sociales”, Université Lille 3.
- *R. Gaudel*, Licence: “C2i”, 25 hours, L1-3, any Licence, Université Lille 3.
- *J. Mary*, Master : “Programmation et analyse de donnée en R”, 48h eq TD, M1, Université de Lille 3, France.
- *J. Mary*, Master : “Graphes et Réseaux”, 32h eq TD,L1, Université de Lille 3, France.
- *J. Mary*, Master : “Système”, 12h eq TD,L1, Université de Lille 3, France.
- *E. Duflos*, Master (3rd year of Engineer School): “Advanced Estimation" , 20 hours, M2, Option "Data Analysis and Decision", Ecole Centrale de Lille.
- *E. Duflos*, Master (3rd year of Engineer School): “Multi-Objects Filreting" , 16 hours, M2, Option "Data Analysis and Decision", Ecole Centrale de Lille.

9.3. Supervision

- PhD : *Jean Francois Hren*, Planification optimiste pour systèmes dèterministes, Université de Lille 1, June 2012.
- PhD : *Alexandra Carpentier*, Toward optimal sampling in low and high dimension, Université de Lille 1, Octobre 2012.
- PhD: *Christophe Salperwyck*, *Apprentissage incrémental en ligne sur flux de données*, Université de Lille 3, November 30, 1012, Philippe Preux, [4].
- PhD : *Emmanuel Delande*, "Multi-sensor PHD filtering with application to sensor management", Jan. 2012, encadrement : E. Duflos and P. Vanheeghe.
- PhD in progress : *Boris Baldassari*, *Apprentissage automatique et développement logiciel*, Sep. 2011, encadrement: Philippe Preux.
- PhD in progress : *Victor Gabillon*, "Active Learning in Classification-based Policy Iteration", Sep. 2009, encadrement: M. Ghavamzadeh, Ph. Preux.
- PhD in progress : *Azadeh Khaleghi*, "Unsupervised Learning of Sequential Data", Sep. 2010, encadrement: D. Ryabko, Ph. Preux.
- PhD in progress : *Sami Naamane*, "Filtrage collaboratif adverse et dynamique", Nov. 2011, encadrement: J. Mary, Ph. Preux.
- PhD in progress : *Olivier Nicol*, "Apprentissage par renforcement sous contrainte de ressources finies, dans un environnement non stationnaire, face à des flux de données massifs", Nov. 2010, encadrement: J. Mary, Ph. Preux.
- PhD in progress : *Amir Sani*, "Learning under uncertainty", Oct. 2011, encadrement: R. Munos, A. Lazaric.
- PhD in progress : *Emilie Kaufmann*, "Bayesian Bandits", Oct. 2011, encadrement: R. Munos, O. Cappé, A. Garivier.
- PhD in progress : *Marta Soare*, "Pure Exploration in Multi-arm Bandit", Oct. 2012, encadrement: R. Munos, A. Lazaric.
- PhD in progress : *Adrien Hoarau*, "Multi-arm Bandit Theory", Oct. 2012, encadrement: R. Munos.

9.4. Juries

- Ph. Preux is an examiner of the H.D.R. of Ludovic Denoyer, Paris 6.
- *E. Duflos* is an examiner of the Ph.D. of GU Wei (IRCICA).

9.5. Popularization

- *J. Mary* received a bachelor student for one week to present some research oriented activities in informatics.
- *J. Mary* was involved in different PICOM meeting with private companies to present research on sequential data analysis.

SIERRA Project-Team

9. Dissemination

9.1. Scientific Animation

9.1.1. Editorial boards

F. Bach: Journal of Machine Learning Research, Action Editor.

F. Bach: IEEE Transactions on Pattern Analysis and Machine Intelligence, Associate Editor.

F. Bach: Information and Inference, Associate Editor.

F. Bach: SIAM Journal on Imaging Sciences, Associate Editor.

G. Obozinski: Journal of Machine Learning Research, Member of the Editorial Board.

9.1.2. Area chairs

G. Obozinski: International conference on Artificial Intelligence and Statistics (AISTATS) 2012.

F. Bach: International Conference on Machine Learning, 2012.

S. Lacoste-Julien, F. Bach: Conference on Uncertainty in Artificial Intelligence, 2012.

9.1.3. Reviewing

Journals: Annals of Statistics, Machine Learning, Journal of Machine Learning Research (JMLR), IEEE Transaction on Information Theory, Transaction in Pattern Recognition and Machine Intelligence (TPAMI), Information and Inference (IMAIAI), Scandinavian Journal of Statistics (SJS), Statistics and Computing (STO), Annales de l'IHP, Annals of Statistics

Conferences: UAI, ECML, NIPS, CVPR, ICML, COLT, AISTATS.

9.1.4. Other

S. Arlot is member of the board for the entrance exam in Ecole Normale Supérieure (mathematics, voie B/L).

9.1.5. Workshop and conference organization

M. Schmidt, Session Organizer at International Conference on Continuous Optimization (July 27 - August 1, 2013).

G. Obozinski, Co-organiser of the workshop "Sparsity, Dictionaries and Projections in Machine Learning and Signal Processing" at ICML 2012, Edinburgh, Scotland. http://www.di.ens.fr/~obozinski/ICML2012workshop/.

F. Bach: International Conference on Machine Learning, 2012, Workshop co-chair.

F. Bach: Co-organizer of the NIPS workshop on "Analysis Operator Learning vs. Dictionary Learning: Fraternal Twins in Sparse Modeling", https://sites.google.com/site/dlaoplnips2012/.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence : S. Arlot, F. Bach, G. Obozinski, "Apprentissage statistique", 35h, Ecole Normale Supérieure, Filière "Math-Info", première année.

Licence: G. Obozinski, Introduction aux modèles graphiques (4h) in Enseignement spécialisé "Apprentissage artificiel" for second year students at Ecole des Mines.

Mastère: S. Arlot and F. Bach, "Statistical learning", 24h, Mastère M2, Université Paris-Sud, France.

Mastère: G. Obozinski, N. Le Roux, Introduction à l'apprentissage machine appliqué aux neurosciences et à la cognition Co-teaching (6h) in the course of the Master Recherche en Sciences Cognitives co-habilitated by EHESS, ENS and Université Paris Descartes.

Mastère: F. Bach, G. Obozibski, Introduction aux modèles graphiques (30h), Master MVA (Ecole Normale Supérieure de Cachan).

Doctorat: S. Arlot, "Model selection via penalization, resampling and cross-validation, with application to change-point detection", 6h, Université de Cergy.

Doctorat: G. Obozinski, Probabilistic graphical models for Information Retrieval, in the Russian Summer School in Information Retrieval (RuSSIR 2012), Yaroslavl, Russia.

Doctorat: F. Bach, International Computer Vision Summer School 2012, 3h, Sicily.

Doctorat: F. Bach, Summer school on Visual Recognition and Machine Learning, 3h, Grenoble.

Doctorat: F. Bach: Machine learning summer school (MLSS), 3h, Kyoto, Japan.

9.2.2. Supervision

PhD : Toby Hocking, "Learning algorithms and statistical software, with applications to bioinformatics", ENS Cachan, November 20, 2012, Advisors: F. Bach, J.-P. Vert (Ecole des Mines de Paris - Institut Curie).

PhD: Augustin Lefèvre, "Dictionary learning methods for single-channel audio source separation", ENS Cachan, October 3, 2012, Advisors: F. Bach and C. Févotte (Telecom Paristech).

PhD: Armand Joulin, "Convex optimization for co-segmentation", ENS Cachan, December 17, 2012, Advisors: F. Bach and J. Ponce (Willow project-team).

9.3. Invited presentations

S. Arlot, "Optimal model selection with V-fold cross-validation: how should V be chosen?", World Congress in Probability and Statistics 2012, Istanbul.

S. Arlot, "Resampling-based estimation of the accuracy of satellite ephemerides", Inaugural Conference of the Laboratory Fibonacci, Scuola Normale Superiore di Pisa, 2012.

S. Arlot, "Choix de V pour la sélection de modèles par validation croisée V-fold en estimation de densité", Séminaire parisien de statistique, IHP, Paris, 2012.

S. Arlot, "Calibration automatique d'estimateurs linéaires à l'aide de pénalités minimales, application à la régression multi-tâches.", Séminaire de Statistique de l'IMT, Toulouse, 2012.

F. Bach, International Conference on Pattern Recognition Applications and Methods, Faro, Portugal, 2012 (keynote speaker).

F. Bach, Rank Prize Symposium (invited talk), Lake District, England, 2012.

F. Bach, University of Cambridge (two seminars), 2012.

F. Bach, Schlumberger workshop on Mathematical Models of Sound Analysis, IHES (invited talk), 2012.

F. Bach, Joint Pattern Recognition Symposium of the German Association for Pattern Recognition (DAGM) (invited talk), Graz, Austria, 2012.

F. Bach, International Workshop on Machine Learning for Signal Processing (plenary lecture), Santander, Spain, 2012.

F. Bach, Seminar Max-Planck Institute, Tübingen, October 2012.

E. Grave, Laboratoire d'Informatique de Paris 6, Université Pierre et Marie Curie (Seminar), 2012.

S. Lacoste-Julien, "Harnessing the structure of data for discriminative machine learning", Colloque du Département d'Informatique et de Recherche Opérationnelle, Université de Montréal, Montréal, Canada, February 2012

S. Lacoste-Julien, "Structured Alignment Methods in Machine Learning", SMT seminar at the LIMSI, Orsay, France, July 2012

S. Lacoste-Julien, "Frank-Wolfe optimization insights in machine learning", machine learning seminar, University of Toronto, Toronto, Canada, August 2012.

S. Lacoste-Julien, "Frank-Wolfe optimization insights in machine learning", Machine Learning Group seminar, University of Cambridge, Cambridge, UK, August 2012.

S. Lacoste-Julien, "Harnessing the structure of data in machine learning", invited talk, Department of Engineering Science, University of Oxford, Oxford, UK, September 2012.

S. Lacoste-Julien, "Frank-Wolfe optimization insights in machine learning", invited talk, Stanford AI Lab, Stanford University, Stanford, USA, December 2012.

G. Obozinski, Swiss Statistical Seminar, Bern, Switzerland, April 2012.

G. Obozinski, Séminaire de Statistiques, Université de Pennsylvanie, Philadelphia, PA, USA, May 2012.

G. Obozinski, Séminaire de Statistiques, Université Paris 11, May 2012.

G. Obozinski, Journées de Statistiques (Conférence annuelle de la Société Francaise de Statistiques), Université Libre de Bruxelles, Belgium, May 2012.

G. Obozinski, Congrèss mondial de Probabilités et Statistiques, Istanbul, Turkey, July 2012.

G. Obozinski, séminaire du CEREMADE, Université Paris-Dauphine, December 2012.

M. Schmidt, NAIS Workshop on Advances in Large-Scale Optimization, Edinburgh, May 24-25, 2012.

M. Schmidt, International Symposium on Mathematical Programming, Berlin, August 19-24, 2012.

M. Schmidt, University of British Columbia, "Linearly-Convergent Stochastic-Gradient Methods", Seminar, December 10, 2012.

M. Schmidt, - Simon Fraser University, "Opening up the black box: Faster methods for non-smooth and big-data optimization", Seminar, December 11, 2012.

9.4. Prizes and awards

M. Schmidt, NSERC Postdoctoral Fellowship (January 2012 - December 2013).

S. Lacoste-Julien, Research in Paris fellowship 2011-2012.

F. Bach: Inria young researcher prize, 2012.

R. Jenatton: Thesis prize from Fondation Hadamard, 2012.

R. Jenatton: Thesis prize from AFIA, accessit, 2012.

9.5. Popularization

Participation to Inria-Rocquencourt “Fête de la Science”, 2012.

TAO Project-Team

9. Dissemination

9.1. Scientific Animation

- Jamal Atif
  - Co-organiser of RTE workshop, a one-day RFIA associated workshop on Reasoning on Space and Time (http://www.lri.fr/~atif/RTE2012/).
  - Reviewer for Information Sciences, Fuzzy Sets and Systems, and many conferences in computer vision
- Anne Auger
  - Member of the ACM-SIGEVO Executive (Special Interest Group on Evolutionary Computation (was the International Society on Genetic and Evolutionary Algorithms before 2006);
  - THRaSH, *Theory of Randomized Search Heuristics workshop*, member of Steering Committee;
  - Editorial Board of *Evolutionary Computation*, MIT Press; Guest editor of Algorithmica special issue and ECJ special issue
  - Proceedings chair of the GECCO 2012 conference
  - Reviewer for IEEE Trans on Evolutionary Computation, ECJ, Journal of Global Optimization, JMLR, JOTA, MEME, PC member of PPSN, GECCO, EuroGP, FOGA
  - Co-organizer of GECCO 2012 Black-Box-Optimization-Benchmarking workshop.
- Nicolas Bredeche
  - Track chair ALIFE at GECCO 2012
  - PC member: Evostar 2012, Evorobot 2012, CEC 2012, SAB 2012
- Philippe Caillou
  - PC member at ECAI 2012
  - Coordinator of the SimTools Network (RNSC Network)
  - Reviewer for Simulation, Studia Informatica Universalis
- Cyril Furtlehner
  - Co-organiser of a one-day interdisciplinary workshop https://who.rocq.inria.fr/Jean-Marc.Lasgouttes/workshop/ on Information processing in complex systems with applications to traffic forecasting at Inria place d'Italie in Paris.
- Cécile Germain
  - PC member for: IEEE/ACM Cluster, Cloud and Grid Computing (CCGRID) since 2009; Utility Cloud Computing (UCC) since 2011; IFIP International Conference on Network and Parallel Computing since 2005; SP Cloud workshop; EGEE/EGI user forum since 2008.
  - Member (elected) of the University scientific council and board (Conseil Scientifique de l'Université et bureau).
- Nikolaus Hansen
  - Editorial Board member of *Evolutionary Computation*, MIT Press;
  - Co-organizer of the Dagstuhl Seminar 13271 Theory of Evolutionary Algorithms

  - Tutorials at the LION and ACM-GECCO conferences
  - Co-organizer of the ACM-GECCO 2012 Black-Box-Optimization-Benchmarking workshop
  - PC member of most of the important conferences in the area of Evolutionary Computation
- Yann Ollivier
  - Frequent refereeing for many of the main mathematical journals.
- Marc Schoenauer
  - Elected member of ACM-SIGEVO Executive since 2003 (Special Interest Group on Evolutionary Computation (was the International Society on Genetic and Evolutionary Algorithms before 2006); member of ACM-GECCO Business Committee (2012-2013).
  - Parallel Problem Solving from Nature, Member of Steering Committee (since 1998);
  - Co-chair with Youssef Hamadi (MSR Cambridge) of the LION'6 conference (Learning and Intelligent OptimizatioN) in Paris, January 2012.
  - Editorial Board of *Evolutionary Computation*, MIT Press (Editor in Chief, 2002-2009); *Genetic Programming and Evolvable Machines*, Springer Verlag; *Applied Soft Computing*, Elsevier; *Natural Computing Series*, Springer Verlag.
  - PC member of all important conferences in the area of Evolutionary Computation (ACM-GECCO, PPSN, EvoStar, IEEE-CEC, SEAL, SAC, ...).
  - Honorary Adjunct Professor, School of Computer Science, University of Adelaide, Australia (renewed until end 2015).
- Michèle Sebag
  - Member of the CoNRS; Senior Advisory Board CHIST-ERA; member of the CSFRS (Conseil Supérieur de la Formation et Recherche Stratégique);
  - Pattern Analysis, Statistical Learning and Computational Modelling NoE, Member of Steering Committee (PASCAL 2004-2008; PASCAL2, 2008-);
  - Editorial Board of *Machine Learning Journal*, Springer Verlag; *Genetic Programming and Evolvable Machines*, Springer Verlag.
  - Member of the European Machine Learning and Knowledge Discovery from Databases Steering Committee since 2010;
  - ECCAI Fellow since 2011;
  - Workshop Chair of ECAI 2012 (Montpellier, August 2012);
  - PC member of the major conferences in ML and EC worldwide;
  - reviewer for ERC applications; FNRS (Belgium), NSWO (Netherlands).
  - member of CCSU: LRI, Paris-Sud; LPMA, Paris-Diderot.
- Olivier Teytaud
  - Reviewer for various conferences and journals in optimization and machine learning.
  - Organizer a forum in Taiwan (http://top.twman.org/2012frtw) for developing collaborations between European and Taiwanese experts of energy management.
  - Organizer of an international meeting in France (combining academics and companies) as detailed in Section 8.5.1 .

9.2. Invited talks

- Anne Auger: GECCO 2012 Tutorial, LION 2012 Tutorial, CMAP Seminar
- Cyril Furtlehner: 4th YSM-SPIP workshop in Sendai

- Yann Ollivier: Oxford (probability and statistics seminar), Orsay (probability and statistics seminar), IRCAM (information geometry seminar).
- Marc Schoenauer:
  - 18th CREST Open Workshop, *Managing and Optimising Multiplicity Computing*, UCL, Londond, UK, 22-23 March 2012;
  - Complex Adaptive Systems Laboratory seminar, University College Dublin, Ireland, 25 May 2012;
  - ECODAM, Doctoral Summer School on Evolutionary Computation and Data Mining, Faculty of Informatics, Iasi University, Romania, 18023 June 2012;
  - Séminaire du département de génie de la production automatisée, Ecole Supérieure de Technologie, Montreal, Canada, 7 Dec. 2012.
- Michéle Sebag:
  - Invited talk at the Spring Workshop on Mining and Learning, Bad Neuenahr, Germany, Apr. 18-20, 2012.
  - Keynote speaker at the 36th Annual Conference of the German Classification Society, Hildesheim, August 1-3, 2012.
  - Invited talk at the Turing's heritage session at ECAI 2012, August 27-31, 2012.
  - Invited talk, Sixth "Starting Artificial Intelligence Research" Symposium, August 27, 2012.
  - Invited tutorial, International Summer School on Resource-aware Machine Learning, Dortmund, Germany, Sept. 4-7, 2012.
  - Invited tutorial, Constraint Programming 2012, Québec, Canada, Oct. 8-12, 2012.
- Olivier Teytaud:
  - has been invited in several universities in Taiwan during his one-year stay in 2011-2012: Kaohsiung NUK; Hsinchu NDHU; Hsinchu NCTU; Hualien NDHU; Tainan NUTN.
  - was invited at the Bielefeld "search methodologies" seminar 2012 (booklet).
  - invited speaker at the "Unexpected Results" workshop at ECML-PKDD, Sept. 2012.

9.3. Teaching - Supervision - Juries

9.3.1. Teaching

Jamal Atif

Licence (ou équivalent) : approx. 192h (Computer science), L1, IUT Orsay, Univ. Paris-Sud, France.

Master (ou équivalent) : approx. 18h (Robotics and Autonomous agents), M2R, Univ. Paris-Sud, France.

"Directeur d'études" at Computer science department of IUT d'Orsay, Univ. Paris-Sud, France

Anne Auger

Master : 12h (Optimization) M2R, Univ. Paris-Sud, France, 20 h (Stochastic Optimization) Ecole Centrale Paris

Doctorat : 4h (Stochastic numerical optimization by Evolution Strategies) Evolution Artificielle Summer School, 2h (Covariance Matrix Adaptation Evolution Strategy - together with N. Hansen) ACM-GECCO Tutorial, 2h (CMA-ES tutorial) LION Conference invited tutorial

Nicolas Bredèche

Licence (ou équivalent) : approx. 80h (Artificial Life), L2, Univ. Paris-Sud, France.

Master (ou équivalent) : approx. 120h (Evolutionary Computation, Artificial Intelligence), L2, Univ. Paris-Sud, France. Including 15h Evolutionary Robotics, M2R.

Philippe Caillou

Licence (ou équivalent) : approx. 192h (Computer science for managers), L1, IUT Sceaux, Univ. Paris-Sud, France.

Master (ou équivalent) : approx. 27h (Multi-Agents Systems), M2R, Univ. Paris-Sud, France.

Master (ou équivalent) : 3h (Multi-Agent Based Simulation), M2R, Univ. Paris-Dauphine, France.

Michèle Sebag

Licence (ou équivalent) : approx. 24h (Introduction to Machine Learning), L3 ENS-Cachan, France.

Master (ou équivalent) : approx. 12h (Apprentissage Statistique et Optimisation, TC2), M2R, Univ. Paris-Sud, France.

Master (ou équivalent) : approx. 12h (Apprentissage Statistique, Optimisation et Applications), M2R, Univ. Paris-Sud, France.

9.3.2. Supervision

PhD & HdR :

Rémi Bardenet, *Méthodes d'échantillonnage pour l'Inférence et l'Optimisation en Physique des Particules*, Université Paris-Sud, Dec. 2012, B. Kegl [1].

Zyed Bouzarkouna, *Optimisation de Puits Non Conventionnels : Type, Position et Trajectoire*, Université Paris-Sud, April 2012, A. Auger and M. Schoenauer [2]

Mouadh Yagoubi, *Multi-objective parallel evolutionary algorithms : Application on Diesel Combustion*, Université Paris-Sud, July 2012, M. Schoenauer and Ludovic Thobois (ex-PSA) [3].

L. Veysseire, *Courbure de Ricci grossière de processus markoviens*, Ecole normale supérieure de Lyon, Juillet 2012, Y. Ollivier.

PhDs in progress

Riad Akrour, *Autonomous Robotics based on Information Theory*, Université Paris-Sud, Nov. 02., 2010, M. Sebag

Ouassim Ait Elhara, *Stochastic Large Scale Optimization*, Université Paris-Sud, October 2012, A. Auger and N. Hansen

Ludovic Arnold, *Architectures Profondes pour la Vision Computationnelle*, Université Paris-Sud, Jan. 01., 2010, H. Paugam-Moisy and Ph. Tarroux (LIMSI) (defence in April 2013).

Alexandre Chotard, *Enhancement and Analysis of Evolution Strategies*, Université Paris-Sud, Oct. 01., 2011, A. Auger and N. Hansen

Adrien Couëtoux *Monte-Carlo Tree Search and other Reinforcement Learning methods for Energy Management Applications*, Université Paris-Sud, Sept. 01., 2010, O. Teytaud

Dawei Feng *Détection et diagnostic d'anomalies dans les systémes globalisés à grande échelle*, Université Paris-Sud, Oct. 01., 2010, C. Germain

Jérémie Decock *Comparison and Combination of Control and Reinforcement Learning methods for Energy Management Applications*, Université Paris-Sud, Oct. 03., 2011, O. Teytaud

Nicolas Galichet *Integrity Preserving Policy Learning*, Université Paris-Sud, Oct. 01., 2011, M. Sebag

Moez Hammami, *Traitement de Données Financiéres Haute Fréquence: Exploration de Méthodes de Construction Inductive à Grandes Echelle*, Université Paris Diderot, May 01., 2011, M. Sebag

Jean-Baptiste Hoock, *Goal Planning with Massive Sets of Heuristics*, Université Paris-Sud, Nov. 01.,2009, O. Teytaud

Yoann Isaac, *Apprentissage Génératif pour les Interfaces Cerveau-Machine*, Université Paris-Sud, Oct. 03., 2011, C. Gouy-Pallier (CEA) and M. Sebag

Ilya Loshchilov, *Rank-based Meta-models for Costly Optmization*, Université Paris-Sud, Oct. 01., 2009, M. Schoenauer and M. Sebag (defence in January 2013).

Gaétan Marceau-Caron, *Optimisation Globale du Trafic Aérien*, Université Paris-Sud, May 11., 2011, A. Hadjaz (Thalés Air Systems), P. Savéant (Thalés R&D) and M. Schoenauer

Victorin Martin, *Modélisation Probabiliste et Inférence par Propagation de Croyances : Application au Trafic Routier*, Université Paris-Sud,Dec. 01., 2009, A. de la Fortelle and J.-M. Lasgouttes (Inria Rocquencourt)

Jean-Marc Montanier, *Robotique Evolutionnaire pour l'Adaptation en Ligne d'un Essaim de Robot*, Université Paris-Sud, Oct. 01., 2009, N. Bredeche (defence in March 2013).

Weija Wang, *Théorie de l'Information pour l'Apprentissage statistique en Robotique Embarquée*, Université Paris-Sud, Oct.01., 2010, M. Sebag

9.3.3. Juries

- Jamal Atif was a referee of the mid-term PhD committe of Yuan Yang (Telecom-ParisTech, April 2012)
- Philippe Caillou was in the PhD committee of An Vo Duc (LIP6 Paris, November 2012).
- Yann Ollivier was an external referee for the Habilitation of Benoît Kloeckner (Grenoble, December 2012).
- Marc Schoenauer was external reviewer for Eduardo Vellasques'PhD (Ecole de Technologie Supérieure, Université du Québec, Canada, Informatique), PhD committee member for Vincent Baudoui (Université de Toulouse, Mathématiques Appliquées), Gabriel Synaeve (Université de Grenoble, Informatique), Marco Montemuro (Université Pierre et Marie Curie, Mécanique), Giovanni Granato (Ecole Polytechnique, Mathématiques Appliquées), and HdR committee member for Daniel Delahaye (Université de Toulouse, Mathématiques Appliquées) and Frédéric Lardeux (Université d'Angers, Informatique). He was also external reviewer within the Tenure Committee for Prof. Dirk Arnold, Dalhousie University, Canada.
- Michèle Sebag was external reviewer for Michael Aupetit (HdR), Hai Le Son (PhD)
- Olivier Teytaud was in the PhD committee for Benoit Gandar (Clermont-Ferrand, November 2012).

9.4. Popularization

- Olivier Teytaud has written a popularization paper on Chess algorithms in Interstices.
- We made two demonstrations, in Taiwan, of parallel automatic player evaluation; the events were advertised in general audience newspapers (MoGo web page). Our Taiwanese partner has a motivation around PISA (international student assessment) and eTeaching.
- We also made in Brisbane a general audience demonstration of games against humans, with 7 wins out of 12 against professional players in fair games in 7x7 (MoGo web page).
- Yann Ollivier organizes a bi-monthly math seminar for undergrad students on Saturdays at Institut Henri Poincare (together with X. Caruso, I. Kortchemski, R. Mansuy and A. Taveneaux), with 100+ participants at each session.
- Yann Ollivier takes part in the organization of the European Union Contest for Young Scientists (science fair for high school students from 30+ countries organized by the European Commission).
- Yann Ollivier belongs to the scientific steering committee for the elaboration of a brochure *L'explosion des mathémathiques* presenting a wide range of applications of mathematics, edited by the SMF and SMAI.
- Philippe Caillou was a teacher at the GAMA Winter School in Can Tho (Vietnam) in November 2012. The winter school objective was the diffusion of multi-agent based simulation methodology with the GAMA Platform to non-computer scientist in Can Tho Biology and Environment University.

ALEA Project-Team

9. Dissemination

9.1. Scientific Animation

9.1.1. Editorial Board

P. Del Moral is currently associate editor/editor for the following journals

- Chief editor : American Journal of Algorithms and Computing, since 2012.
- Associate editor : Applied Mathematics and Optimization, since 2009.
- Associate editor Revista de Matematica: Teoria y Aplicaciones , since 2009.
- Associate editor : Stochastic Analysis and Applications, since 2001.

9.1.2. Senior Program Committee

- International conference on Uncertainty in Artificial Intelligence (UAI'2012): F. Caron
- 1eres rencontres R: P. Legrand

9.1.3. Responsibilities

B. Bercu is responsible of the thematic group MAS (Modélisation Aléatoire et Statistique) at SMAI.

B. Bercu is an assistant director of the Institut de Mathématiques de Bordeaux (IMB). He is also a member of the IMB council and the UFR council of the University of Bordeaux. He is a member of the CNU section 26.

B. Bercu is co-responsible of the specialty "Modélisation Statistique et Stochastique" of the Master MIMSE.

P. Legrand is a member of "bureau de l'association Evolution artificielle".

P. Legrand is in charge of the learning management system MOODLE of the UFR sciences et modélisation (University of Bordeaux II).

9.1.4. Organization of Conferences

- International Conference Evolve 2012: P. Legrand, P. Del Moral (with A.A. Tantar, E. Tantar, P. Bouvry, O. Schütze)
- International workshop on Sequential Monte Carlo methods and Efficient simulation in Finance: P. Del Moral (with E. Gobe, P. Hu)
- Workshop EDF/Inria, New stochastic forecasting methods for individual temporal series in energy context : B. Bercu, F. Proïa (with S. Bercu, P. Lé)

9.1.5. Reviewing

- Journals: Annals of Statistics, IEEE TPAMI, Journal of the Royal Statistical Society B, Computational Statistics and Data Analysis, Statistics and Computing, Journal de la Société Francaise de Statistiques
- Conferences: UAI, NIPS, ICML, AISTATS

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence :

- B. Bercu, Mathématiques générales, Analyse et Algèbre SVE, 36h, L1, University of Bordeaux, France

- P. Legrand, Espaces Euclidiens, 54h, L2, University of Bordeaux, France
- P. Legrand, Traitement du Signal, 18h, L3, University of Bordeaux, France
- P. Legrand, Informatique pour les mathématiques, 36h, L1, University of Bordeaux, France
- P. Legrand, Algèbre, 72h, L1, University of Bordeaux, France
- P. Legrand, Technologies de l'information, de la communication pour l'éducation, 42h, University of Bordeaux, France
- A. Richou, Probabilités et statistiques, 32h, L3, University of Bordeaux, France
- A. Richou, Probabilités et statistiques, 32h, L1, University of Bordeaux, France

Master :

- A. Richou, Probabilité, 32h, M1, University of Bordeaux, France
- B. Bercu, Séries chronologiques, 48h, M2, University of Bordeaux, France
- B. Bercu, Processus aléatoires à temps discret, 30h, M1, University of Bordeaux, France
- B. Bercu, Probabilités, 30h, L3, University of Bordeaux, France
- F. Caron, Bayesian Methods, 33h, M2, University Bordeaux II, France
- F. Caron, Statistical Methods in Robotics, 25h, M2, IPB, France
- F. Caron, Advanced estimation tools in signal and image processing, 30h, M2, University Bordeaux I, France
- P. Legrand, Traitement du signal, 15h, M2, IPB, France

Other:

- P. Del Moral, Professeur chargé de cours (1/3 temps), Monte Carlo methods and Stochastic models, and introduction to probability calculus, Ecole Polytechnique, France.
- P. Del Moral, Mean field particle simulation for Monte Carlo integration, 10h, Lectures INLN-CNRS of the University of Nice Sophia Antipolis.
- P. Legrand, Course on Matlab, 42H

9.2.2. Supervision

PhD:

- Aurélie Le Cain, Caractéristiques spatiales et temporelles d'une tache focale LMJ, university Bordeaux I, Jan. 2012, P. Del Moral and B. Bercu
- Peng Hu, Méthodes particulaires et applications en finance , university Bordeaux I, June 2012, P. Del Moral

PhD in progress :

- Vassili Blandin, Processus autorégressifs à bifurcation, Sept. 2011, B. Bercu
- Frédéric Proia, Processus autorégressifs stables, Dec. 2010, B. Bercu, P. Del Moral
- Philippe Fraysse, Algorithmes stochastiques pour la régression semi-paramétrique, Sept. 2010, B. Bercu
- Paul Lemaitre, Analyse de sensibilité et analyse de risques, Sept. 2010, P. Del Moral
- François Giraud, Méthodes particulaires adaptatives pour l'estimation non linéaire, Nov. 2009, P. Del Moral
- Nicolas Antunès, Etude du modèle GARP pour la prédiction de niches écologiques, Sept. 2011, P. Del Moral and P. Legrand
- Laurent Vézard, Réduction de dimension en apprentissage supervisé. Application à l'étude de l'activité cérébrale, Sept. 2010, P. Legrand
- Antoine Campi, Filtrage particulaire de fluides turbulents, 2012, P. Del Moral

- Christelle Vergé, Méthodes particulaires pour la propagation d'incertitudes dans des codes numériques, 2012, P. Del Moral
- Paula Craciun, Méthodes de filtrage multi-objets en analyse d'image, 2012, P. Del Moral

9.2.3. Juries

- Peng Hu, PhD, University of Bordeaux: P. Del Moral
- Cyrille Dubarry, PhD, TelecomParisSud: P. Del Moral
- Sébastien Gadat, HDR, University of Toulouse: P. Del Moral
- Jérémie Bureau, PhD, University of Toulouse : B. Bercu
- Valère Bitseki Penda, PhD, University Blaise Pascal : B. Bercu
- Pascal Szacherski, PhD, University of Bordeaux: F. Caron

ASPI Project-Team

7. Dissemination

7.1. Scientific animation

Arnaud Guyader and Frédéric Cérou have co–organized the workshop on *Computation of Transition Trajectories and Rare Events in Non-Equilibrium Systems*, held in Lyon in June 2012.

Arnaud Guyader has organized the session on *Rare Events Simulation* at *Journées MAS de la SMAI*, held in Clermont–Ferrand in August 2012. He has also co–organized the 2012 edition of the *Journées de Statistiques Rennaises*, held in Rennes in October 2012. He is the co–author of a book [27] on the statistical software R.

François Le Gland was a member of the scientific and organizing committees for the international conference on *Ensemble Methods in Geophysical Sciences*, held in Toulouse in November 2012, an event organized within the ANR project PREVASSEMBLE.

François Le Gland has been a member of the committee for the PhD thesis of Cyrille Dubarry (université Pierre et Marie Curie, advisor: Éric Moulines) and he as been a reviewer for the PhD theses of Romain Leroux (université de Poitiers, advisors: Ludovic Chatellier and Laurent David), Virgile Caron (université Pierre et Marie Curie, advisor: Michel Broniatowski), and Thierry Dumont (université Paris–Sud, advisor: Elisabeth Gassiat).

Florent Malrieu has co–organized the 2012 edition of *Journées de probabilités*, held in Roscoff in June 2012.

Valérie Monbet has co–organized the first international workshop on *Stochastic Weather Generators*, held in Roscoff in May 2012. It gathered 30 participants from France, UK, USA and New-Zealand. Most major teams working on WGs were present. The latest developments were presented, thus providing an up–to–date and almost comprehensive snapshot of the state–of–the art.

François Le Gland is a member of the "conseil d'UFR" of the department of mathematics of université de Rennes 1.

Florent Malrieu is a member of the "conseil" of IRMAR (institut de recherche mathématiques de Rennes, UMR 6625).

Valérie Monbet is a member of the "comité de direction" and of the "conseil" of IRMAR (institut de recherche mathématiques de Rennes, UMR 6625). She is also the director of the master on statistics and econometry at université de Rennes 1.

7.2. Teaching

Arnaud Guyader is a member of the committee of "oraux blancs d'agrégation de mathématiques" for ENS Cachan at Ker Lann.

François Le Gland gives a course on Kalman filtering and hidden Markov models, at université de Rennes 1, within the master SISEA (signal, image, systèmes embarqués, automatique, école doctorale MATISSE), 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. He has also organized a thematic school on particle filtering, proposed as a complementary scientific training to PhD students of école doctorale MATISSE.

Florent Malrieu teaches in the probability and statistics track of the training programme for "agrégation de mathématiques" at université de Rennes 1.

Valérie Monbet gives several courses on data analysis, on time series and hidden Markov models, and on mathematical statistics, all at université de Rennes 1 within the master on statistics and econometrics.

7.3. PhD and habilitation theses

Arnaud Guyader has been supervising one PhD student

- Nicolas Jégou, title: *Régression isotonique itérée*, defense in November 2012, co–direction: Nick Hengartner (Los Alamos) and Éric Matzner–Løber (université de Rennes 2).

Valérie Monbet is currently supervising one PhD student

- Julie Bessac, provisional title: *Space time modelling of wind fields*, started in October 2011, co–direction : Pierre Ailliot (université de Bretagne Occidentale),

and she is a member of the PhD thesis committe of

- Jérôme Weiss, provisional title: *Modelling of extreme storm surge series*, funding : CIFRE grant with EDF R&D, direction : Michel Benoît (Laboratoire d'Hydraulique Saint-Venant).

François Le Gland has been supervising one PhD student

- Rudy Pastel, title: *Estimation of rare event probabilities and extreme quantiles. Applications in the aerospace domain*, defense in February 2012, funding: ONERA grant, co–direction: Jérôme Morio (ONERA, Palaiseau).

and he is currently supervising three PhD students

- Paul Bui–Quang, provisional title: *The Laplace method for particle filtering*, started in October 2009, expected defense in 2013, funding: ONERA grant, co–direction: Christian Musso (ONERA, Palaiseau).
- Alexandre Lepoutre, provisional title: *Detection issues in track–before–detect*, started in October 2010, funding: ONERA grant, co–direction: Olivier Rabaste (ONERA, Palaiseau).
- Damien Jacquemart, provisional title: *Rare event methods for the estimation of collision risk*, started in October 2011, funding: DGA / ONERA grant, co–direction: Jérôme Morio (ONERA, Palaiseau).

7.4. 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.

Arnaud Guyader has been invited to give a talk on adaptive multilevel splitting for rare event estimation in a static case, at the workshop on *Sequential Monte Carlo Methods and Efficient Simulation in Finance*, held at École Polytechnique in October 2012, and a talk on Monte Carlo methods for rare event simulation, at the *Rencontres Statistiques Lyonnaises*, held in Lyon in October 2012. He has given a talk on the nonparametric analysis of the ABC algorithm and a talk on iterative isotone regression, at the *44èmes Journées de Statistique*, held in Brussels in May 2012, and a talk on soft level splitting for rare event estimation, at the *9th International Workshop on Rare Event Simulation*, held in Trondheim in June 2012.

François Le Gland has given a talk on adaptive resampling in sequential Monte Carlo methods, at the CRiSM workshop on *Recent Advances in Sequential Monte Carlo*, held at the University of Warwick in September 2012, and a talk on large sample asymptotics of the ensemble Kalman filter, at the workshop on *Data Assimilation*, held at the University of Oxford in September 2012, and at the international conference on *Ensemble Methods in Geophysical Sciences*, held at the Météo–France center in Toulouse in November 2012.

Florent Malrieu has given a three–hour mini–course on the long time asymptotics of piecewise–deterministic Markov models, in the workshop on *Piecewise–Deterministic Markov Processes*, held in Marne–la–Vallée in March 2012. He has been an invited speaker at the ERGONUM workshop on *Probabilistic Analysis of Large Time Systems*, held in Sophia–Antipolis in June 2012, and at the EPSRC workshop *At the Frontier of Analysis and Probability*, held in Warwick in September 2012. He has been invited to give seminar talks on the long time behaviour of the TCP process in Marseilles in January 2012 and in Paris–Nanterre in May 2012, and on the long time behaviour of some piecewise deterministic Markov processes in Tours in October 2012, in Montpellier and in Toulouse in November 2012.

7.5. Visits and invitations

Arnaud Guyader has been invited by Nicolas Hengartner to visit Los Alamos National Laboratories in April 2012.

François Le Gland has been invited by Arunabha Bagchi to visit the department of applied mathematics of the University of Twente in Enschede and the technical business unit on radar engineering at Thalès Nederland in Hengelo in December 2012, and he has given there a talk on rare event simulation in stochastic hybrid systems, a talk on Laplace and SMC methods in Bayesian filtering, and a talk on detection issues in track–before–detect.

CQFD Project-Team

8. Dissemination

8.1. Editorial activities

F. Dufour is associate editor of the journal: SIAM Journal of Control and Optimization since 2009.

All the member of the team are regular reviewers for the most important journals in applied probability and statistics.

8.2. Scientific responsibilities

F. Dufour is the leader of the ANR project FAUTOCOES. B. de Saporta is in charge of the tâche 3 of the ANR project FAUTOCOES.

8.3. Organization of workshops and conferences

The team CQFD organized the first french-speaking meeting on the software R in July 2012.

8.4. Administration of the universities and research institutes

F. Dufour is member of the scientific council of the engineering school ENSEIRB-MATMECA.

F. Dufour is member of the scientific council of the Institute of Mathematics of Bordeaux.

F. Dufour is vice-president of the Inria Project Committee.

B. de Saporta is president of the "Congress and Colloquium" commission of the Inria Bordeaux Sud-Ouest.

B. de Saporta is in charge of the seminar of the team ”Statistics and Probability” of the Institute of Mathematics of Bordeaux (IMB).

B. de Saporta is correspondent of the cursus *Ingénierie Economique* of the master MIMSE *Ingénierie Mathématique, Statistique et Economique* of the University of Bordeaux.

A. Gégout-Petit is elected member of the CEVU of University Bordeaux Segalen

A. Gégout-Petit is in charge to promote diplomas of UFR Science et Modélisation.

A. Gégout-Petit is member of the Mathematical Institute of Bordeaux council

A. Gégout-Petit is general secretary and elected member of the council of the Société Française de Statistique.

M. Chavent is co-director of the cursus *Modélisation Statistique et Sochastique* of the master MIMSE *Ingénierie Mathématique, Statistique et Economique* of the University of Bordeaux.

J. Saracco is member of the commission Inria ”Jeunes Chercheurs”.

J. Saracco is member of the council of ENSC

J. Saracco is the leader of the team ”Statistics and Probability” of the Institute of Mathematics of Bordeaux (IMB).

H. Zhang is director of the cursus *Ingénierie Mathématique* of the Licence de Mathématiques of the University of Bordeaux.

8.5. Scientific Animation

J. Saracco was member of the AERES visiting committee of the research unit of the "Laboratoire de Probabilités et modèles aléatoires" (LPMA Universités Paris 6 et Paris 7)

B de Saporta, J. Saracco and M. Chavent are elected (deputy) member of the CNU 26.

B. de Saporta belongs to the board of SMAI-MAS group.

A. Gégout-Petit was in the organizing committee of the first "Forum Emploi Mathématique" which was successful and had gather together a thousand of participants in january.

A. Gégout-Petit made a action in order to promote scientific studies with a class of secondary (statistical project with the pupils and presentation of a research project for the pupils in the university.

L. Vézard has presented the objectives of his PhD work and its contribution in the global project of musical informatics to a class of secondary school.

8.6. Teaching - Supervision - Juries

8.6.1. Teaching

Licence : F. Dufour, Probabilités et statistiques, 16 heures, niveau L3, Institut Polytechnique de Bordeaux, école ENSEIRB-MATMECA, France. Probabilités , 10,6 heures, niveau L3, Institut Polytechnique de Bordeaux, école ENSEIRB-MATMECA, France.

Licence : F. Dufour, Probabilités et statistiques, 16 heures, niveau L3, Institut Polytechnique de Bordeaux, école ENSEIRB-MATMECA, France. Probabilités , 10,6 heures, niveau L3, Institut Polytechnique de Bordeaux, école ENSEIRB-MATMECA, France.

Licence : A. Gégout-Petit, Etudes de cas en statistique, 28h, L3 MASS (applied mathematics), Université Bordeaux Segalen, France.

Licence : A. Gégout-Petit, Econométrie et séries chronologiques, 24h, L3 MASS (applied mathematics), Université Bordeaux Segalen, France.

Licence : M. Chavent, Statistique descriptive, 36 ETD ,L1, university Bordeaux Segalen, France

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 : F. Dufour, Méthodes numériques pour la fiabilité, 24 heures, niveau M1, Institut Polytechnique de Bordeaux, école ENSEIRB-MATMECA, France. Probabilités, 20 heures, niveau M1, Institut Polytechnique de Bordeaux, école ENSEIRB-MATMECA, France.

Master : B. de Saporta, Processus aléatoires en finance 30h ETD, M1, université de Bordeaux, France

Master : B. de Saporta, Finance en temps continu, 10h ETD, M2, université de Bordeaux, France

Master : B. de Saporta, Finance en temps discret, 29h ETD, M2, université de Bordeaux, France

Master : B. de Saporta, Processus de Markov, 25h ETD, M2, université de Bordeaux, France

Master : A. Gégout-Petit, Analyse de variance, 36h, M1, université Bordeaux, France.

Master : M. Chavent, Analyse des données 1, 43 ETD, niveau M1, university Bordeaux Segalen, France

Master : M. Chavent, Modèle de régression, 29 ETD, niveau M1, university Bordeaux Segalen, France

Master : M. Chavent, Logiciels de statistique, 12 ETD, niveau M1, university Bordeaux Segalen, France

Master : M. Chavent, Analyse des données 2, 25 ETD, niveau M2, university Bordeaux Segalen, France

Master : M. Chavent, Scoring, 21 ETD, niveau M2, university Montesquieu Bordeaux 4, France

Master: J. Saracco, Mathematics (complement of linear algebra and analysis), 20h, M1, 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

Master: J. Saracco, Sampling techniques and experimental designs, 25h, M2, Master “Ingénierie Mathématique, Statistique et Economique”, the University of Bordeaux, France

8.6.2. Supervision

HdR : Anne Gégout-Petit, "Contribution à la statistique des processus : modélisation et applications, Université Bordeaux 2, 19 novembre 2012

PhD : Adrien Brandejski, Méthodes numériques pour les Processus Markoviens Déterministes par Morceaux,Université Bordeaux 1, 2 juillet 2012, supervised by F. Dufour and B. de Saporta

PhD in progress : Azaïs Romain, Inférence des processus Markoviens déterministe par morceaux , juillet 2013, supervised by François Dufour and Anne Gégout-Petit

PhD in progress : Camille Baysse, Analyse et optimisation de la fiabilité d’un équipement opto-électronique équipé de HUMS, novembre 2013, supervised by Anne Gégout-Petit and Jérôme Saracco

PhD in progress : Laurent Vezard, "Classification de signaux EEG et synthèse de paramètres musicaux par algorithme évolutionnaire", University of Bordeaux 1, supervised by M. Chavent and P. Legrand.

PhD in progress : Raphaël Coudret, Modélisation statistique de données acquises à haute fréquence : application en environnement et génétique, University of Bordeaux 1, supervised by J. Saracco and G.Durrieu.

PhD in progress : 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 , University of Bordeaux 1, supervised by J. Saracco and V. Couallier.

PhD in progress : Amaury Labenne, Approche Statistique du diagnostic territorial par la notion de qualité de vie, University of Bordeaux 1, supervised by M. Chavent, J. Saracco and V. Kuentz.

PhD in progress : Isabelle Charlier, Optimal quantization applied to conditional quantile estimation, University of Bordeaux 1 and Université Libre de Bruxelle, supervised by J. Saracco and D. Paindaveine.

8.6.3. Juries

B. de Saporta was a member of the selection committee for an assistant professor position (MdC 26) at University Montesquieu Bordeaux IV.

F. Dufour was referee of the PhD dissertation of C. Illand at Université Paris 6.

F. Dufour was referee of the PhD dissertation of Ariane Lorton at Université Technologique de Troyes.

J. Saracco was referee of the PhD dissertation of Adriana Cucu Gogonel at Université Paris 5.

J. Saracco was president of jury of the PhD of Adriana Christophe Denis at Université Paris 5.

J. Saracco was referee of the PhD dissertation of Adriana Cucu Gogonel at Université Paris 5.

J. Saracco was member of the juries for the HDR of Charles Bouveyron (Université Paris 1) and Julien Jacques (Université de Lille 1).

I4S Team

9. Dissemination

9.1. Scientific Animation

L. Mevel is part of the IOMAC organisation committee. He is also reviewer for numerous journals and conference boards. He is associate editor of Journal of Modelling and Simulation in Engineering. He is part of the local organizing committee of EWSHM 2014.

9.2. Teaching - Supervision - Juries

9.2.1. Supervision

PhD in progress : Ambient diagnosis and early instability monitoring for helicopter rotor : Ahmed Jhinaoui, ,since June 2010, L.Mevel and J. Morlier (ISAE)

PhD in progress : Algorithms for monitoring and localization of damage. Luciano Marin, since October 2010, L.Mevel and D. Bernal (University of NorthEastern, Boston, USA)

PhD in progress : Aeroelastic instability early detection methods in frequency domain. Philippe Mellinger, since June 2011, L. Mevel and C. Meyer (Dassault Aviation)

MATHRISK Team

8. Dissemination

8.1. Scientific Animation

8.1.1. Collective responsabilities

- A. Alfonsi: Co-organizer of the working group seminar of MathRisk “Méthodes stochastiques et finance”.
- D. Lamberton:
  1. "Associate Editor" of *Mathematical Finance*, co-editor of *ESAIM P&S*.
  2. In charge of the master program “Mathématiques et Applications" (Universities of Marne-la-Vallée, Créteil and Evry, and Ecole Nationale des Ponts et Chaussées).
  3. Vice-président recherche, Université Paris-Est Marne-la-Vallée.
- A. Sulem:
  1. Associate editor of:
     * *SIAM Journal on Financial Mathematics (SIFIN)* (since its creation in 2008)
     * *International Journal of Stochastic Analysis (IJSA)* (since 2009)
     * *Journal of Mathematical Analysis and Applications (JMAA)*(since 2011)
  2. Jury for assitant professor position in financial mathematics and numerical probability, Laboratoire de probabilités Université Paris VII, 2012.
- B. Jourdain and A. Sulem: Organisation of a school CEA EDF Inria "Systemic Risk and Quantitative Risk management", Octobre 15-17 2012, http://bit.ly/finance_inria

8.1.2. Invitations and participation in conferences

- A. Sulem

  - Plenary conferences
    - Main speaker, "Probability & Finance" Final Conference of the Research Project PRIN 2008 Pescara, Italy, September 2012 http://www.dec.unich.it/convsem/2012-09-10/?home
    - Cornell University, ORIE Colloqium, April 10 2012 http://www.orie.cornell.edu/news/seminars/

  - invited conferences
    - "PDE and Mathematical Finance V", Stockholm, June 10-14, 2013.
    - Symposium "Commodities, Energy Markets & Equilibrium" , 4th Conference of the Financial Mathematics and Engineering (FME) SIAG (SIAM Activity Group). Minneapolis, Minnesota, July 9-11, 2012. http://www.siam.org/meetings/fm12/
    - Universite Evry seminar, Juin 2012
    - Semester program on Stochastic Analysis and Applications at the Centre Interfacultaire Bernoulli, Ecole Polytechnique Fédérale de Lausanne, January-June 2012.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

- A. Alfonsi:

1. “Modéliser, Programmer et Simuler”, second year course at the Ecole des Ponts.
2. “Calibration, Volatilité Locale et Stochastique”, third-year course at ENSTA (Master with Paris I).
3. “Traitement des données de marché : aspects statistiques et calibration”, lecture for the Master at UPEMLV.
4. “Mesures de risque”, Master course of UPEMLV and Paris VI.

- V. Bally:
  1. Master 2 of the University Marne la Vallée:

     -Malliavin Calculus and numerical applications in fiance

     - Probabilistic methods for risk analysis.

     -Taux d’itérêt
- B. Jourdain :
  1. Course "Probability theory and statistics", first year ENPC
  2. Course "Introduction to probability theory", 1st year, Ecole Polytechnique
  3. Course "Stochastic numerical methods", 3rd year, Ecole Polytechnique
  4. projects in finance and numerical methods, 3rd year, Ecole Polytechnique
- B. Jourdain, B. Lapeyre: course "Monte-Carlo methods in finance", 3rd year ENPC and Master Recherche Mathématiques et Application, University of Marne-la-Vallée
- J.-F. Delmas, B. Jourdain: course "Jump processes with applications to energy markets", 3rd year ENPC and Master Recherche Mathématiques et Application, university of Marne-la-Vallée
- D. Lamberton:
  1. Second year of Licence de mathématiques (probability), Université Paris-Est Marne-la-Vallée.
  2. Master course “Calcul stochastique et applications en finance", Université Paris-Est Marne-la-Vallée.
- A. Sulem:
  1. Master course, Université Paris IX-Dauphine, Département MIDO (Mathématiques et Informatique de la Décision et des Organisations), Master MASEF, 21 h., *Méthodes numériques en Finance*
  2. Master of Mathematics, Université du Luxembourg, 15h, 2012. *Numerical Methods in Finance*.

8.2.2. Supervision

- HdR :

  Aurélien Alfonsi, *Discrétisation de processus et modélisation en finance*, December 14 2012 , Ecole des Ponts Université Paris Est
- PhD :

  Lokmane Abbas Turki. *Calcul parallèle pour les problèmes linéaires, non-linéaires et linéaires inverses en finance.* PhD thesis, Université Paris-Est, September 21, 2012,
  this thesis was funded by Credinext.
  Advisers: D. Lamberton and B. Lapeyre,
  Current Position: Postdoc, Humbold University, Berlin
- PhD in progress
  - José Infante Acevedo: (from Oct. 2009). Half of this thesis is dedicated to *liquidity risk and limit order books modelling* . Adviser: A. Alfonsi.

- Pierre Blanc: *Modeling the price impact of limit and market orders*. Adviser: A. Alfonsi.
- Ayech Bouselmi: (3nd year, started in October 2009). Allocataire de recherche, Université Paris-Est. *Lévy processes and multi-dimensional models in finance*. Adviser: D. Lamberton.
- Roxana Dumitrescu: started October 2012, *Gestion de risques sous contraintes de portefeuille*. Fondation Sciences Mathématiques de Paris grant, Inria and Université Paris-Dauphine, Inria adviser: A. Sulem.
- Jing Chen: (Shandong University grant), Inria *Non Markovian Stochastic Control and Backward SDEs*, Adviser: A. Sulem .
- Maxence Jeunesse: (started in November 2009), *Study of some numerical methods in finance*. Adviser: B. Jourdain and J.-Ph. Chancelier, chair "Risques financiers" grant.
- Jyda Mint Moustapha: (started in november 2012), IFSTTAR, *Etude et caractérisation de pelotons de véhicules sur des routes à forte circulation*. Advisers: D. Daucher and B. Jourdain.
- Ernesto Palidda: ENPC and Crédit Lyonnais GRO. *Multi-dimensional stochastic volatility for Interest Rates*. Adviser: B. Lapeyre.
- Paola Pigato: (started November 2012). UPEMLV and University of Pisa, *Calcul de Malliavin*. Adviser: V. Bally.
- Clément Rey: ENPC and UPMLV. *Weak error analysis of discretization schemes for some financial processes*. Advisers: A. Alfonsi and V. Bally.
- Julien Reygner: (started in september 2011), IPEF, ENPC. *Convergence à l'équilibre de processus stochastiques*. Advisers: L. Zambotti and B. Jourdain.
- Victor Rabiet: (started 01/10/2009). ENS Cachan and UPEMLV : *Régularité du semi-groupe pour des équations stochastiques avec sauts*. Adviser: V. Bally.

8.2.3. Juries of PhD

- Agnes Sulem
  - Carmine De Franco, Laboratoire de Probabilités et Modeles Aléatoires (LPMA), Université Paris VII, 29 Juin 2012.
  - Lebovits Joachim, Ecole Centrale de Paris, 25 janvier 2012: Stochastic calculus with respect to multi-fractional Brownian motion and applications to finance
- Damien Lamberton
  - Carmine De Franco, Laboratoire de Probabilités et Modeles Aléatoires (LPMA), Université Paris VII, 29 Juin 2012.

REGULARITY Project-Team

9. Dissemination

9.1. Scientific Animation

Jacques Lévy Véhel is associate editor of the journal *Fractals*.

Jacques Lévy Véhel was invited for two weeks at the program *Stochastic Analysis* organized by the Bernoulli Center, Lausanne.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

- Erick Herbin is head of the Mathematics Department at Ecole Centrale Paris since 2011.
- Erick Herbin is in charge of the "Mathematical Modeling and Numerical Simulation" Program in the Applied Mathematics option of Ecole Centrale Paris.
- Erick Herbin is in charge of the Probability course at Ecole Centrale Paris (20h).
- Erick Herbin is in charge of the Advanced Probability course at Ecole Centrale Paris (30h).
- Erick Herbin and Jacques Lévy Véhel are in charge of the Brownian Motion and Stochastic Calculus course at Ecole Centrale Paris (30h).
- Erick Herbin gives tutorials on Real Analysis and Integration at Ecole Centrale Paris (10h).
- Jacques Lévy Véhel teaches a course on Wavelets and Fractals at Ecole Centrale Nantes (8h).
- Paul Balança and Alexandre Richard are teaching assistants since October 2010 at Ecole Centrale Paris:
  - Paul Balança gives tutorials on Probability, Real Analysis and Integration at Ecole Centrale Paris (20h).
  - Alexandre Richard gives tutorials on Probability and Statistics at Ecole Centrale Paris (20h).
  - Paul Balança and Alexandre Richard give tutorials on Advanced Probability at Ecole Centrale Paris (17h).
- Paul Balança, Erick Herbin and Alexandre Richard supervise several student's research projects in the field of Mathematics at Ecole Centrale Paris.

9.2.2. Supervision

PhD : Joachim Lebovits, Stochastic Calculus With Respect to Multifractional Brownian Motion and Applications to Finance, Université de Paris 6, defended on January 25, 2012, supervised by J. Lévy Véhel and M. Yor.

PhD in progress : Benjamin Arras, Self-similar processes in higher order chaoses, started in September 2011, supervised by J. Lévy Véhel.

PhD in progress : Paul Balança, Stochastic 2-microlocal analysis of SDEs, started in October 2010, supervised by Erick Herbin.

PhD in progress : Alexandre Richard, Regularity of set-indexed processes and construction of a set-indexed process with varying local regularity , started in October 2010, supervised by Erick Herbin and E. Merzbach.

9.3. Popularization

J. Lévy Véhel has written articles for Interstices and the "le saviez-vous" page of Inria web site.

TOSCA Project-Team

9. Dissemination

9.1. Scientific Animation

- M. Bossy is a member of the Scientific Committee of the *École Doctorale "Sciences Fondamentales et Appliquées"* of the Université de Nice – Sophia Antipolis.
- M. Bossy is a member of the *Collectif Andromede* of the PACA Region council.
- M. Bossy is a elected member of the Inria Evaluation Board, a member of the NICE Committee of Inria Sophia Antipolis –Méditerranée.
- M. Deaconu is a member of the *COST-GTAI (Groupe de Travail Actions Incitatives)* of Inria, of *Comité des Projets* and *Bureau du Comité des Projets* at Inria Nancy, Grand-Est.
- M. Deaconu is a member of the *Conseil de Laboratoire* at Elie Cartan Institute in Nancy.
- M. Deaconu organized the session *Probabilités Numériques* in the *11th Colloque Franco-Roumain de Mathématiques Appliquées* held in Bucharest in August.
- A. Lejay is member of a editorial board of the collection *Séminaire de Probabilités*.
- A. Lejay is member of the scientific committee of the *Journées de Probabilités*.
- A. Lejay is general Secretary of Société des Mathématiques Appliquées et Industrielles (SMAI).
- A. Lejay is elected member of the Commission du Personnel of the Institut Élie Cartan.
- A. Lejay is member of the COMIPERS at Inria Nancy Grand-Est.
- D. Talay served as the Scientific Deputy of Inria Sophia Antipolis — Méditerrannée.
- D. Talay, jointly with F. Delarue (Université de Nice Sophia Antipolis) and G. Pagès (Paris 6 University), organized the workshop ERGONUM in Sophia Antipolis in June.
- D. Talay served as an Associate Editor of: *Stochastic Processes and their Applications*, *ESAIM Probability and Statistics*, *Stochastics and Dynamics*, *SIAM Journal on Numerical Analysis*, *SIAM Journal in Financial Mathematics*, *Journal of Scientific Computing*, *Monte Carlo Methods and Applications*, *Oxford IMA Journal of Numerical Analysis*, *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*.
- D. Talay is serving as a member of the Advisory Board of the Centro de Mathematica da Universidade do Porto (Portugal).
- D. Talay participated to a junior position recruitment committee at Paris 6 University.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master : M. Bossy, *Continuous Probabilistic Models with Applications in Finance*, 45h, M2 IMAFA (*Informatique et Mathématiques Appliquées à la Finance et à l'Assurance*), *Ecole Polytechnique Universitaire*, Univ. Nice – Sophia Antipolis, France.

Master : M. Bossy, *Risk management on energetic financial markets*, 13.5h, Master *Ingénierie et Gestion de l'Energie*, École des Mines de Paris at Sophia-Antipolis, France.

Master : M. Bossy *Particle Methods*, 18 h, Master 2 *Probabilité et Applications* at Université Paris 6, France.

Master: N. Champagnat, *Introduction to Quantitative Finance*, 13.5h, M1, Ecole des Mines de Nancy, France.

Master: N. Champagnat, *Introduction to Quantitative Finance*, 22.5h, M2, Ecole des Mines de Nancy, France.

Licence: P. Charton *Evaluation des méthodes d'analyse appliquées aux sciences de la vie et de la santé*, 27h, L1, Univ. de Lorraine, France.

Licence: P. Charton *Outils théoriques : probabilités statistiques*, 37h, L3, Univ. de lorraine, France.

Master: M. Deaconu, *Stochastic modeling*, 30h, M2, Université de Lorraine, France.

Master: M. Deaconu, *Simulation of random variables*, 9h, M1, Ecole des Mines de Nancy, France.

Master : A. Lejay, *Probabilistic Numerical methods for Mathematical Finance*, 28.5h, M2, Université de Lorraine (Metz), France.

Master : A. Lejay, *Numerical methods*, 22.5h, M2, Université de Lorraine (Nancy), France.

Master: D. Talay, *Stochastic Flows*, 12h, M2 *Probabilités et Applications* and M2 *Probabilités et Finance* at Université Paris 6, France.

Master: E. Tanré, *Advanced numerics for Computational Finance*, 30 h, M2, UNSA (Mathmodes Erasmus Mundus), France.

Master: E. Tanré, *Numerical Probability in Finance*, 12 h, M2, Ecole PolytechNice (IMAFA), France.

Master: E. Tanré, *Numerical Methods in Finance*, two sessions with 18 h, M2, ULB (University Certificates in Financial and Insurance Risk Modelling And Quantitative Methods in Finance), Belgium.

Licence : D. Villemonais, *Probabilités*, 21h, L3, École des Mines de Nancy, France.

Master: L. Violeau, *Continuous Probabilistic Models with Applications in Finance* (exercice classes), 20h, M2 IMAFA (*Informatique et Mathématiques Appliquées à la Finance et à l'Assurance*), Ecole Polytechnique Universitaire, Univ. Nice, France.

Licence: L. Violeau, *Probabilty and Statistics* (exercice classes), 20h, L3, Ecole Polytechnique Universitaire, Univ. Nice, France.

9.2.2. Supervision

- PhD in progress: Paul Charton, *Hedging strategies for wind energy prices*, September 2010, M. Deaconu and A. Lejay.
- PhD in progress: Julien Claisse, *Stochastic control of population dynamics*, September 2010, N. Champagnat, D. Talay.
- PhD in progress: Dalia Ibrahim, *Mathematical modelling for technical analysis techniques*, November 2009, D. Talay and E. Tanré.
- PhD in progress : Lionel Lenôtre, *Monte Carlo methods for discontinuous media*, Université Rennes 1, started in October 2012, Jocelyne Erhel (IRISA), Antoine Lejay and Géraldine Pichot (IRISA).
- PhD in progress : Geoffrey Nichil, *Provisionnement en assurance non-vie et optimisation du calcul du SCR*, 2011, S. Herrmann and P. Vallois.
- PhD in progress: Sebastian Niklitschek-Soto, *Discretized stochastic differential equations related to one-dimensional partial differential equations of parabolic type involving a discontinuous drift coefficient*, September 2010, D. Talay.
- PhD in progress: Nicolas Perrin, *Stochastic methods in molecular dynamics*, October 2009, M. Bossy, N. Champagnat, D. Talay.
- PhD in progress: Laurent Violeau, *Stochastic Lagrangian Models and Applications to Downscaling in Fluid Dynamics*, October 2010, M. Bossy and A. Rousseau.

9.2.3. Juries

- M. Bossy reported on the Ph.D. thesis of Lokman Abbas-Turki, Université Paris-Est.

- A. Lejay was an expert for the thesis of N. Marie (Université Paul Sabatier, Toulouse, France).
- D. Talay reported on the Habilitation à Diriger les Recherches of M. Benalaya (Université Paris 13), and on the Ph.D. thesis of N. Millot (Ecole Centrale) and N. Belaribi (University Paris 13). He also chaired the Committee for the Habilitation à Diriger les Recherches of A. Gloria (Université de Lille).

9.3. Popularization

- A. Lejay is a member of the organizing committee of the *Forum des lauréats des prix en informatique et mathématiques appliquées* (Inria & SMAI) held in Paris in December 2012.

9.4. Participation to congresses, conferences, invitations...

- M. Bossy gave invited talks at the *IMA Workshop Mathematics of the New Financial Systems University of Minnesota* in May and at the *Journees MAIRCI, Bull Grenoble* in September.
- M. Bossy gave talks at the *workshop MathAmSud* at Santiago, Chile in January and at the *Conference in Energy Finance at WPI* at Vienna, Austria in September.
- N. Champagnat gave a 4h lecture on *Modèles stochastiques individu-centrés en dynamique adaptative et étude du branchement évolutif* at the Summer School *Modélisation en dynamique des populations et Évolution: Probabilités et EDP* in September at La Londe les Maures.
- N. Champagnat gave talks at the MBI Workshop on *Evolution and Spread of Disease* in Columbus, Ohio, USA in March, at the Conference on *Probability, Population Genetics and Evolution* at the CIRM in Marseille in June, at the *6th European Congress of Mathematics (6ECM)* in Krakow in July and at the *XIème Colloque Franco-Roumain de Mathématiques Appliquées (CFR2012)* in Bucarest in August.
- N. Champagnat gave seminar talks at the SMILE Seminar on *Stochastic Models for the Inference of Life Evolution* at Collège de France, Paris, in March, at the *Rencontres de la Chaire MMB (Modélisation Mathématique et Biodiversité)* at Ecole Polytechnique, Palaiseau in June, at the workshop *Modèles stochastiques pour l'écologie et la biologie* of the Labex Numev in Montpellier in October, and at the *Séminaire de Probabilités de l'Institut de Mathématiques de Toulouse* in Toulouse in November.
- M. Deaconu gave invited talks at the *Workshop, Sequential Monte Carlo Methods and Efficient Simulation in Finance* at the Ecole Polytechnique in Paris in October, at the *Workshop, Perspective asupra cecetarii matematice in societatea bazata pe cunoastere*, organisé dans le cadre de la Conférence *Diaspora in Cercetarea Stiitifica si Invatamantul Superior in Romania*, in October, at the *Ecole Polytechnique Fédérale de Lausanne (EPFL)* in Lausanne in July.
- M. Deaconu gave a seminar talk at the *Séminaire de Probabilités et Statistiques de l'Institut de Mathématiques de Bourgogne*, in January.
- D. Ibrahim gave a talk at the *Chair of Quantitative Finance seminar* of Centrale Paris, in April.
- J. Inglis participated in the international colloquium *Random Models in Neuroscience* at the Université Pierre et Marie Curie (Paris) in July.
- A. Lejay gave a talk at the conference *Recent Developments in Stochastic Analysis* at Lausanne (Switzerland) in February and at the workshop *Rough Paths and PDEs* at Oberwolfach (Germany) in August.
- A. Lejay gave seminar talks at the probability seminars of Université du Maine (Le Mans), Université de Bourgogne, Université de Grenoble and Université de Rennes.
- D. Talay gave talks at the *workshop MathAmSud* at Santiago, Chile in January and at the XV Ecole Franco-Espagnole Jacques-Louis Lions at Malaga in September. He also gave several seminars at Ecole Polytechnique and a seminar at Columbia University in October.

- D. Talay gave a plenary conference at ICNAAM 2012 in Greece in September.
- D. Talay gave mini-courses at the Séminaire Bachelier (Institut H. Poncaré, Paris) in January and February, and at ICERM (Brown Univeristy) in October.
- E. Tanré gave one talk at the *MathAmSud Workshop* in Santiago, Chile in January and two talks at the *CLAPEM (Latin American Congress of Probability and Mathematical Statistics)* in March at Vina del Mar, Chile.
- E. Tanré gave an invited talk at the International Colloquium *Random Models in Neuroscience* at the Université Pierre et Marie Curie (Paris) in July.
- E. Tanré gave a seminar talk at the *Probability Seminar* of Univ. of Bourgogne (Dijon).
- D. Villemonais gave a 6h lecture on *Distributions quasi-stationnaires* at the *Université de Marseille* in June 2012.
- D. Villemonais gave talk at the *Inhomogeneous random systems* annual workshop at the Institut Henri Poincaré in Paris in January 2012.
- L. Violeau gave a talk at the *XIème Colloque Franco-Roumain de Mathématiques Appliquées (CFR2012)* in Bucarest in August.