



RESEARCH CENTER

FIELD

**Applied Mathematics, Computation
and Simulation**

Activity Report 2015

Section Popularization

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ACUMES Team (section vide)

CAGIRE Team

10.3. Popularization

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

CARDAMOM Team

10.3. Popularization

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

⁰<http://www.inria.fr/institut/strategie/inria-a-la-cop21>

DEFI Project-Team (section vide)

ECUADOR Project-Team

9.3. Popularization

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

GAMMA3 Project-Team (section vide)

IPSO Project-Team (section vide)

MATHERIALS Project-Team (section vide)

MEMPHIS Team

10.3. Popularization

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

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

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

MEPHYSTO Team (section vide)

MOKAPLAN Project-Team

9.3. Popularization

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

NACHOS Project-Team (section vide)

NANO-D Project-Team

9.3. Popularization

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

POEMS Project-Team (section vide)

RAPSODI Team

10.3. Popularization

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

APICS Project-Team

9.3. Popularization

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

BIPOP Project-Team

9.3. Popularization

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

COMMANDS Project-Team

10.3. Popularization

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

DISCO Project-Team (section vide)

GECO Project-Team

8.3. Popularization

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

I4S Project-Team

10.3. Popularization

- V. Le Cam has been invited at the ConfLunch of IRISA on April 24th 2015. [http://videos.rennes.inria.fr/confLunch/#Le Cam](http://videos.rennes.inria.fr/confLunch/#Le%20Cam).
- J. Dumoulin has been involved in the COP 21 France stand for a solar hybrid road demonstration.
- V. Le Cam was present at the inauguration of Cité des Objets Connectés in Angers on 11/06/15 in presence of France president. He was inside the Smart sensors stand for IFSTTAR.
- A nice showcase of I4S was present at the 2015's Hanover messe, in April 2015: BAM (Berlin) had a steel frame demonstrator for the public using our techniques.

Maxplus Team

10.3. Popularization

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

MCTAO Project-Team (section vide)

NECS Project-Team

10.3. Popularization

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

- an interview reported in an article in CNRS 'Le Journal', and a related video (in French, see <https://lejournald.cnrs.fr/articles/quelle-voiture-pour-demain>)
- a video prepared by Inria for RII–Rencontres Inria-Industrie (in English, see https://www.youtube.com/watch?v=Uia4Y-9c6k0&index=5&list=PLV1fJrIaqWIMe5savY102Oz-M_hVmXg30).
- H. Fourati gave a talk 'Prédiction et contrôle du trafic routier sur Grenoble : une solution automatisée avec MATLAB' at the 'journée Nouveautés MATLAB 2015a, Data Analytics & Calcul Parallèle', Grenoble, March 26th.

NON-A Project-Team (section vide)

QUANTIC Project-Team

8.3. Popularization

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

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

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

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

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

SPHINX Team

10.3. Popularization

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

DOLPHIN Project-Team

10.3. Popularization

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

GEOSTAT Project-Team

10.3. Popularization

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

INOCS Team (section vide)

MISTIS Project-Team

10.3. Popularization

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

MODAL Project-Team

10.3. Popularization

- **Research Sensibilisation**

- Christophe Biernacki has given a talk “Big Stat / MixtComp: A SaaS platform for easy Big Data analysis” to the one-day meeting Data For You at EuraTechnologie in Lille on November 26th 2015 (<http://www.euratechnologies.com/actualites/2015/10/data-you-10381>).
- Sophie Dabo has participated to research valorisation days for high school students female.
- Benjamin Guedj has participated in a meeting with undergraduate students at Université de Lille to promote research positions in mathematics (January 2015).
- Benjamin Guedj has been a speaker for the “30 minutes de science” seminar (Inria Lille - Nord Europe, April 2015).
- Vincent Vandewalle has given a talk “Clustering et modèles prédictif” to the third R&D du Plateau at EuraTechnologie in Lille on April 22th 2015 <http://www.euratechnologies.com/actualites/2015/04/3eme-r-dv-plateau-10038>

- **XPérium Lille 1**

Participants: Christophe Biernacki, Maxime Brunin, Quentin Grimonprez, Vincent Kubicki, Vincent Vandewalle

Vulgarization of MODAL’s research to sensitize students and businesses: <https://modal.lille.inria.fr/xperium/>

REALOPT Project-Team

10.3. Popularization

François Clautiaux is a member of the board of AMIES, the French Agency for Interaction in Mathematics with Business and Society. AMIES is a national organization that aims to develop relations between academic research teams in mathematics and business, especially SMEs.

SELECT Project-Team

9.3. Popularization

Emilie Devijver:

- Organisation of a spring school for high school students about probability, Pristina, Kosovo
- Organisation of the “Séminaire de Vulgarisation des Doctorants” at Université Paris Sud
- Several talks in high schools to give tools to students to understand conferences: “Un texte, un mathématicien” organized at BNF.

SEQUEL Project-Team

10.3. Popularization

- Ph. Preux participates to a radio program on machine learning.
- Ph. Preux co-authors two papers on “Le Monde” binaire blog [38].
- Inria interview with N. Vayatis and M. Valko about teaching machine learning at ENS, July 2015.
- Rue89 interviewed M. Valko about machine learning at Inria, June 2015.
- Intel advertising face recognition software (that included the work of M. Valko), February 2015.
- M. Valko volunteered in teaching mathematics in “Association de la Clé”, that helps students from underprivileged backgrounds.
- Jérémie Mary was interviewed by "Ca m'intéresse" for a special issue on artificial intelligence.

SIERRA Project-Team

10.3. Popularization

S. Lacoste-Julien, general public talk “Apprentissage automatique et big data”, at La Maison des Sciences, Châtenay-Malabry, France, September 2015.

TAO Project-Team

10.3. Popularization

- **Odalric-Ambrym Maillard** May, participation to day "Petits débrouillards", during which secondary schools students come and visit a lab.
- **Aurélien Decelle** May, participation to day "Petits débrouillards", during which secondary schools students come and visit a lab.
- **Yann Ollivier** co-organizes the European Union Contest for Young Scientists (science fair for high school students from 30+ countries organized by the European Commission).
- **Michele Sebag**, participation to IHP debate on AI and society; panel at Technion Research Day.

ASPI Project-Team (section vide)

CQFD Project-Team (section vide)

MATHRISK Project-Team

10.3. Popularization

- A. Lionnet:
 - article on Financial Mathematics published in the online popularization magazine Interstices https://interstices.info/jcms/p_82123/les-mathematiques-financieres-des-quants
 - Conference given for middle-schoolers at University Paris 8 during the "Week of Mathematics 2015".
 - Participation to the colloquium "Science and You", Nancy, June 1–6.
 - The two entries of A. Lionnet to the contest SIAM Math Matters, Apply It (<https://www.siam.org/careers/matters.php>) were selected to be turned into a poster. One was on financial derivatives (<https://www.siam.org/careers/pdf/derivatives.pdf>) the other on systemic risk (<https://www.siam.org/careers/pdf/risk.pdf>).
- A. Sulem:
 - "Applications of stochastic analysis", (2015), invited contribution for the *Princeton Companion to Applied Mathematics*, <http://press.princeton.edu/titles/10592.html>
 - Responsible for the partnership of Inria with Institut Henri Poincaré for the creation of a museum of Mathematics.

TOSCA Project-Team

10.3. Popularization

- M. Deaconu gave an interview for a paper in Eureka Lorraine. URL : <http://eureka.lorraine.eu/jahia/Jahia/pid/1968?actu=23647>