



RESEARCH CENTER

FIELD

**Applied Mathematics, Computation
and Simulation**

Activity Report 2017

Section Popularization

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ACUMES Project-Team

8.3. Popularization

- J.-M. Loubes and P. Goatin, “*La prédiction dans les transports*”, Les Big Data à découvert, CNRS Editions (2017), pp. 124-125.
- Press article: *Les mathématiciennes ont de plus en plus confiance*, La Tribune, May 2017. Portrait of P. Goatin by L.J. Baudu.
- P. Goatin gave the talk “*Le trafic routier en équations*” at Luxembourg University and at Lycée Aline Mayrisch du Luxembourg on October 5, 2017, as part of the conference cycle “*La Recherche au féminin*” organized by the French Institute of Luxembourg.
- Web Press articles : *On a Collision Course with Game Theory* about the Royal Society Proceedings paper [13] in <https://phys.org/news/2017-09-collision-game-theory.html> and in <http://www.sciencenewsline.com/news/2017092714240040.html>

CAGIRE Project-Team

10.3. Popularization

- «Forum des Métiers» organized by "Collège Pierre Emmanuel", Pau (64), France, 18 May 2017. A stand was manned during one day with the objective of explaining the activity of researcher to an audience of middle school students. [PB]

CARDAMOM Project-Team (section vide)

DEFI Project-Team (section vide)

ECUADOR Project-Team (section vide)

GAMMA3 Project-Team (section vide)

IPSO Project-Team (section vide)

MATHERIALS Project-Team

10.5. Popularization

- G. Ferré gave a talk about statistical physics and its applications to undergraduate students at Lycée Pierre Corneille, Rouen, in November 2017.
- A. Levitt is a member of the editorial board of Interstices, Inria's popularization website.
- P. Monmarché gave a talk about mathematics and music to high school students at lycée Pablo Picasso, Avion, in May 2017.
- P. Monmarché participated to Les Matinales de la Recherche de l'ENPC and presented a poster about his work to the students of ENPC in April 2017.
- G. Stoltz participated to Les Matinales de la Recherche de l'ENPC and gave a talk about his work to the staff of ENPC in April 2017.
- G. Stoltz, together with Gilles Buisson (Ecole des Ponts), published a contribution to the proceedings of QPES 2017 (Questions de Pédagogie dans l'Enseignement Supérieur), on his teaching experience involving flipped classrooms organized at the level of a complete class of first year students at Ecole des Ponts. See G. Buisson and G. Stoltz, La classe inversée à grande échelle en école d'ingénieur, Actes du colloque QPES 2017, 633-640.

MEMPHIS Project-Team

10.3. Popularization

Lisl Weynans has co-organized the *Journée Filles et Maths, une équation lumineuse*, April 2017.

Afaf Bouharguane and Lisl Weynans have co-organized the *Journée Emploi Maths de l' Unité de Formation Mathématiques et Interaction*, November 2017.

MEPHYSTO Project-Team

6.3. Popularization

M. Simon participated in the diffusion program *MathenJeans*, in Lille. She followed a group of 4 children (aged 10–11), who presented a project to the national competition named *CGénial*.

MOKAPLAN Project-Team (section vide)

NACHOS Project-Team (section vide)

NANO-D Project-Team

7.3. Popularization

- Sergei Grudin co-advised the team of high-school student "Cantor se Gauss d'un Poincare'" in the team competitions "Tournoi Français Des Jeunes Mathématiciens" (TFJM).
- NANO-D was involved in several popularization activities, including a participation to Fete de la Science, and a participation to the GameLab project in Grenoble, where SAMSON modules were developed for high school students.
- Leonard Jaillet was involved in the development of a demonstration of SAMSON in the Inria showroom. Several scenarii were proposed where the user can interact with molecular systems and test different possible applications of the SAMSON software platform.

POEMS Project-Team (section vide)

RAPSODI Project-Team

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 1 and high schools. Accordingly, she organizes various events which promote mathematics among young peoples like:

Les Mathématiques itinérantes (<http://mathematiques.univ-lille1.fr/Ouvertures/Mathematiques-itinerantes/>)

La semaine des Mathématiques (<http://mathematiques.univ-lille1.fr/Ouvertures/Mathematiques-itinerantes/>)

Stage en sciences pour les élèves de seconde (<http://www.univ-lille1.fr/etudes/stageseconde>)

Members of the team participate regularly in these actions.

APICS Project-Team

8.3. Popularization

- M. Olivi is responsible for Scientific Mediation and president of the Committee MASTIC (Commission d'Animation et de Médiation Scientifique) <https://project.inria.fr/mastic/>. Her main contributions related with this mission were:
 - management of the contract “région PACA: Science Culture Lycée” and organization of about thirty conferences in the high schools of the region (100 students per conference),
 - co-organization of 10 robotics sessions for 2 classes of middle school students (device “MEDITES” <http://medites.fr>, founded by ANRU, the “Agence Nationale de Renovation Urbaine”),
 - co-organization of the “stage MathC2+”, a four-day internship for 50 high school students (“secondes”, about 16 years old) organized by the Committee MASTIC and its partners (June 14-17),
 - co-organization of Inria participation to the event “Le Village des Sciences et de l'Innovation” in Antibes (October 7 & 8, 10000 people),
 - co-organization of about 10 “cafés scientifiques” (c@fé-in's and cafés Techno, 30 to 80 participants each),
 - supervision of a (2 months) internship, done by Sabrina Ballauris, for the realization of objects to manipulate, in view of illustrating some mathematical results and scientific principles (Pythagora's puzzles, Galton's board, Galileo's experiment, the fastest toboggan, ...)

She was a member of the scientific committee of the “Forum Mathématiques Vivantes”, a national event (initiated by CFEM, the French Commission for Mathematics Education, <http://forum-maths-vivantes.fr/>) organized in Lille, Lyon, Rennes, Toulouse during the Mathematics Week. She participated into the reviewing process for the book “Panorama Mathématiques et Langages” published in this occasion by CFEM.

- M. Olivi animated two half-day workshop sessions “activités débranchées” at “l'ESPE de Nice” for primary school students (March 16 & 24), 200 students each session). She gave three presentations for high school students in Gap and Marseille. With K. Mavreas, she participates to the event “Le Village des Sciences et de l'Innovation” in Antibes (October 7 & 8, 10000 people).
- A. Cooman gave a presentation at the “stage MathC2+”, a four-day internship for high-school students organized by the Committee MASTIC and its partners (June 14-17).

BIPOP Project-Team

10.3. Popularization

Alejandro Blumentals and Florence Bertails-Descoubes have participated in the new showroom “login”, by setting up a fiber demo. The demo allows a user to manipulate a real fiber by moving and twisting the ends, creating self-coiling structures called plectonema. In parallel to real manipulations, a simulation reproduces in real-time the deformations of a rod undergoing the same constraints, which reveals similar patterns compared to the real experiment. The simulation relies upon the optimal control framework set up by Alejandro Blumentals in his PhD thesis, which allows to simulate the quasistatic deformation of a thin elastic rod in the presence of self-contact.

COMMANDS Project-Team

10.3. Popularization

The collaboration with startup Safety Line was presented at events “Vivatech” (17/06/2017, <https://vivatechnology.com/>) and “Rencontre Inria Industrie” (17/10/2017) in Paris.

DISCO Project-Team

10.3. Popularization

Catherine Bonnet gave a talk in the *Promenades Mathématiques* series of the event *Femmes en maths : une équation lumineuse* for female high school students, IHP, Paris, 19 december 2017. She met several groups of female high school students at the event *Femmes en maths : une équation lumineuse* IHP, Paris, january 2017. She met several groups of high school students at the event *Forum des métiers* in Lycée Hoche, Versailles, February 2017.

GECO Project-Team (section vide)

I4S Project-Team

10.3. Popularization

The Hybrid solar road Mock-up (presented at the French Pavillon during COP21) has been invited and presented at:

- Forum National des Travaux Publics, Carroussel du Louvre (Paris), February 2017
- Innovation day des Travaux Publics, Casino du Lyon Vert (Lyon), December 2017
- Fête de la science, Ecole d'architecture de Nantes, October 2017

MCTAO Project-Team

9.3. Popularization

J.-B. Caillau participates in the MASTIC initiative at Inria and has given conferences at the high school level in Sophia (MathC2+ event, June 2017) and Grasse (Lycée Amiral, Sep. 2017).

NECS Project-Team

9.3. Popularization

The GTL webpage (<http://gtl.inrialpes.fr/status>) is public in November: more generally the traffic activities have been popularized via the following public talk.

- G. Casadei, V. Bertrand, DEMO on the GTL at the “Rencontres Inria Industrie”, Inria, Paris, Oct. 2017

NON-A Project-Team (section vide)

QUANTIC Project-Team

8.3. Popularization

Mazyar Mirrahimi has been interviewed by Le Monde for a dossier on quantum information.

Mazyar Mirrahimi gave an invited talk on “Quantum computing” at the CRiP’s ITES Innovation Summit at Deauville, France in Mars 2017.

Mazyar Mirrahimi gave an invited talk on “Quantum computing” at X-Creation (X-Drahi) in May 2017.

Pierre Rouchon was invited to give a talk "Contrôle des systèmes: du classique au quantique", Journée d'inauguration du programme PSL-maths, 19 October 2017 at ENS-Paris.

Alain Sarlette has been speaking at inria-organized dissemination events:

- 03/07 "fresh from the labs" talk about quantum technology hardware (at Boston Consulting Group, Paris – team gamma)

- 06-08/06 Keynote speech at Journées DGDT

- 10/07 presentation at inria-Paris-labs visit by high-level managers and stakeholders

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 Project-Team (section vide)

TROPICAL Team (section vide)

DOLPHIN Team

10.3. Popularization

- E-G. Talbi: Organization of a R&D day for all students and lecturers of Polytech'Lille engineering school on "Big data and machine learning" (22/03/2018).

GEOSTAT Project-Team

10.3. Popularization

Diffusion of the GENESIS project in the magazine Inria PLUGIN (published beginning 2018) and in the Inria website (national and INRIS BSO), see <https://www.inria.fr/centre/bordeaux/actualites/lancement-du-projet-genesis>.

INOCS Team

10.3. Popularization

L. Brotcorne, Club Logistique et Transport, Lille, September 2017.

MISTIS Project-Team (section vide)

MODAL Project-Team

10.3. Popularization

Pascal Germain gave a short talk vulgarizing a research topic for first year university students. Part of the presentation of the Painlevé Mathematic Laboratory (University of Lille), December, 1st 2017.

Christophe Biernacki has given about 10 talks during 2017 for institutions (Inria, universities...), companies and other related events. He organized also a first short meeting in February 2017 in Lille for obtaining a feedback from company and academic users about the MASSICCC platform developed by the Modal and Select teams (<https://massiccc.lille.inria.fr/#/>).

Alain Celisse gave a talk at the Meetup in Pau in January, 23rd 2017: Change-point detection with structured objects.

Benjamin Guedj gave a Meetup talk in Pau (3/2017) on quasi-Bayesian learning and an application to digits recognition.

RANDOPT Team (section vide)

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.
- Olivier Beaumont participated to “Unithé ou Café” (May 19, 2017), a local event dedicated to popular science on the topic of online algorithms.
- Olivier Beaumont participated to “La Fête de la Science” (October 3 and 4, 2017) on the computation of PageRank.

SELECT Project-Team (section vide)

SEQUEL Project-Team

10.3. Popularization

- CNRS publishes an article about zonotope sampling presented at ICML (see <http://www.cnrs.fr/ins2i/spip.php?article2633>).
- Julien Seznec publishes an article in *Les Echos* that discusses ML for education (November 2017).
- Émilie Kaufmann gave a popularization talk about bandit algorithms aimed at high school/prepa students at the MathPark seminar, organized at IHP in Paris (April 2017).
- *Avec GuessWhat?! quand l'humain joue, l'ordinateur s'initie au langage*, <https://www.inria.fr/centre/lille/actualites/avec-guesswhat-!-quand-l-humain-joue-l-ordinateur-s-initie-au-langage>
- Florian Strub and Mathieu Seurin demonstrated guesswhat?! during the celebrations of Inria 50th anniversary (November 2017).
- Philippe Preux:
 - interviewed for an article on *L'intelligence artificielle, est-ce vraiment de l'intelligence ?* in *BioTech.info*, Jan. 2017.
 - participates to a debate about Artificial Intelligence, as part of the franceIA tour (Euratechnologies, Lille).
 - interview by AFP in relation to alphaGo.
 - interviewed for an article on AI and games, published in *Le figaro*.
 - an interview that led to a publication in ATOS Connexion, the ATOS internal journal.
 - a video has been made with him being interviewed on Artificial Intelligence by NordEka (to be available on youtube).
 - has been selected to be protrayed at the “Soirée partenaires de l’université de Lille”, Nov.
 - was a member of the organization committee of the celebrations of the 50th Inria anniversary in Lille.
 - co-organizes a meet-up on big data and machine learning at Inria.
- M. Valko, *Comment maximiser la détection des influenceurs sur les réseaux sociaux ?*, popularization talk, Presented on May 30th, 2017 at 13 France (*Inria 13:45 2017*)

SIERRA Project-Team

9.3. Popularization

- A. d'Aspremont: Paris Science et Data, PSL & Inria.
- A. d'Aspremont: Journée innovation défense
- P. Gaillard: testimony for EDF fellows day

TAU Team

10.3. Popularization

Philippe Caillou, talk on quality of life at work, AFRAME association for ethic management, Paris, 28/11/2017

Isabelle Guyon: press release at NIPS conference (5/12/2015); interview l'Usine Nouvelle (12/12/2017).

Michèle Sebag: interview France 2; interview l'Usine Nouvelle; 2 articles The Conversation France.

Paola Tubaro: interview Pourquoi Docteur (online health magazine, 01/01/2017); article in Journal du CNRS (02/02/2017); op-ed Libération (02/02/2017); interview Le Devoir (daily newspaper, Canada, 29/04/2017); interview Les Echos (19/09/2017); interview Le Monde (09/11/2017); 1 article OuiShare magazine (13/07/2017); 1 article The Conversation France (French version 02/11/2017, English version 11/12/2017); round table on Open data at "Science and You" conference, Montréal (05/05/2017); round table "Cuisine and Performance" at Centre Pompidou, Paris (18/11/2017).

ASPI Team (section vide)

CQFD Project-Team (section vide)

MATHRISK Project-Team (section vide)

TOSCA Project-Team (section vide)