

Institut Fourier

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VITAE

- spring 2016 6 months secondment to CNRS, stay in BICMR (China)
- fall 2014 6 months secondment to CNRS, in laboratoire Poncelet, Moscow (Russia)
- 2013– Maître de conférences (assistant professor) of mathematics,
Université Grenoble Alpes (France)
- 2011–2013 Post-doct/assistant in Bern university (Switzerland), supervisor: S. BAADER
- 2008–2011 Graduate student in ÉNS Lyon (France), supervisor: É. GHYS
phD defense: June 23, 2011
- 2004–2008 Student in ÉNS Paris (France)
2007 Master of mathematics
2006 Agrégation of mathématiques (teaching certificate)
2005 Bachelor of mathematics and computer science
- 2002–2004 Preparatory classes in lycée Louis-le-grand (Paris, France)
2003 Fermat junior Price for research in mathematics
- 1995–2002 Highschool in Évreux (France)
2001 and 2002 Participation to International Math Olympiads
2002 First Prize, National Math Competition
- april 1985 Birth in Évreux (France)

ADMINISTRATIVE RESPONSABILITIES

- 2016– Member of the laboratory council of the Fourier Institut (Grenoble)
- 2015 Co-organizer of the conference *Geometries in action*, (Lyon, june 29th - july 3rd, 2015)
- 2015 Organizer of the conference *Knots and links in Fluid Flows* (Moscow, april 27th - 30th, 2015)
- 2014– Organizer of the topology seminar of Institut Fourier (Grenoble)
- 2013–2016 In charge of the cafeteria in Institut Fourier (Grenoble)
- 2013 Co-organizer of the conference Swiss Knots 2013 (Bern, Switzerland)
- 2007–2010 Co-organizer of a math club for high school students in Lyon
- 2008 Co-organizer of a winter school for high school students (Goutelas, France)
- 2008-2011 Co-organizer of the mathematical week-ends in Goutelas (ÉNS Lyon)

RESEARCH

Topics : low-dimensional topology, dynamical systems

PUBLICATIONS IN PEER-REVIEWED JOURNALS

1. Counting moves in knight's tour, *C. R. Math.* **336** (2003), 543–548.
2. On the 3-distortion of a path, *Eur. J. Comb.* **29** (2008), 171–178.
3. Les nœuds de Lorenz, *L'Enseignement mathématique*, **57** (2011), 211–270.
4. A billiard containing all links, *C. R. Math.* **349** (2011), 575–578.

5. On the zeroes of the Alexander polynomial of a Lorenz knot, *Ann. Inst. Fourier* **65** (2015) 509–548.
6. Enlacement entre géodésiques sur une orbifold, *C. R. Math.* **350** (2012), 77–80.
7. Geodesic flows, templates and linking, *Algebr. Geom. Topology* **15** (2015), 1525–1598.
8. Genus one Birkhoff sections for geodesic flows, *Ergod. Theory Dynam. Systems* **35** (2015), 1795–1813.
9. Almost-commensurability of 3-dimensional Anosov flows, *C. R. Math.* **351** (2013), 127–129.
10. with *S. Baader*, Trefoil plumbing, *Proc. Amer. Math. Soc.* **144** (2016), 387–397.
11. Small dilatation homeomorphisms as monodromies of Lorenz knots, *Mittag-Leffler Proceedings* (2013), 1–9.
12. with *T. Pinsky*, Coding of geodesics and Lorenz-like templates for some geodesic flows, to appear in *Ergod. Theory Dynam. Systems*, arXiv:1411.6857.
13. Which geodesic flows are left-handed ? to appear in *Groups, geometry, and dynamics*, arXiv:1501.02909.
14. Asymptotic invariants of 3-dimensional vector fields, *Winter Braids Lecture Notes 2 : Winter Braids V (Pau, 2015)* (2015), exp. no. 2, 19 p.
15. with *A. Rechtman*, The trunkness of a volume-preserving vector field, to appear in *Nonlinearity*, arXiv:1606.01639

SUBMITTED

16. with *S. Baader* and *L. Liechti*, Signature of positive knots and concordance, arXiv:1503.01946
17. with *M. Cossarini*, Intersection norms on surfaces and Birkhoff sections for geodesic flows, arXiv:1604.06688

OTHER TEXTS

- B. with *S. Baader*, Minor theory for surfaces and divides of maximal signature, arXiv:1211.7348
- Q. Composition des tours de cavalier, *Quadrature* **55** (2005), 31–42.
- T. Invariants topologiques des orbites périodiques d’un champ de vecteurs, PhD thesis, ÉNS Lyon (2011), 149 pages.

TALKS

SEMINARS

- 2017 Montpellier, Paris (Algorithmic topology sem.), Rennes, Dijon, Mexico (UNAM)
- 2016 Shanghai (Tongji), Tianjin, Beijing (Beida), Orsay, Lyon (ENS)
- 2015 Marseille, Avignon
- 2014 Moscow (MGU, HSE, physics dpt. MGU, IUM), Nijni-Novgorod (×2), Grenoble
- 2013 Toulouse, Grenoble, Shanghai (Tongji), Beijing (Beida), Lyon (ÉNS), Paris (P6)
- 2012 Rennes, Marseille, Nantes, Lyon, Grenoble, Paris (P6)
- 2011 Orléans (×2), Strasbourg, Dijon, Orsay, Genève, Bern, Toulouse
- 2009 Lyon (ÉNS), Genève
- 2008 Bangalore (TIFR)
- 2007 Zürich (ETH), Liverpool

CONFERENCES

- 2016 Topological methods in dynamics (HSE, Nijni-Novgorod)
- 2015 Topology day of the Auvergne-Rhône-Alpes Federation (Clermont-Ferrand)

- 2014 Mini swiss knots (Bern)
Attractors, foliations, and limit cycles (IUM, Moscow)
- 2013 Paroles aux jeunes chercheurs en systèmes dynamiques (Cirm, Marseille)
Growth and Mahler measures (Mittag-Leffler Institute, Stockholm)
Swiss knots 2013 (Bern)
Topology conference (ECNU, Shanghai)
- 2012 Autour des systèmes d'Anosov (Cirm, Marseille)
- 2007 Journées toulousaines autour des tresses (Toulouse)

MINI-COURSES

- 2015 Winterbraids V winter school (Pau)
- 2014 Shilnikov Workshop (Nijni-Novgorod)

STUDENTS

- 2016– Abdoul Karim Sane (phD, joint with J-C Sikorav)
- 2017 Nicolas Rocher (bachelor thesis), Alain Blaustein (bachelor thesis)
- 2016 Paul Cottalorda (master thesis)
- 2015 Florent Ygouf (master thesis), Diptai Choudhury (bachelor thesis)

TEACHING

- Graduate level *Interplay of low-dimensional topology and dynamics* (Beijing, 2016)
- Master level *Introduction to algebraic topology* (Grenoble, 2015)
Introduction to dynamical systems (Bern, 2012)
- Agregation *Analysis* (Grenoble, 2015)
Geometry (Lyon, 2011)
- Bachelor level *Sequences and series* (Grenoble, 2013, 2015, 2016)
Function series, Fourier series (Grenoble, 2014, 2015)
Bilinear algebra and Fourier series (Grenoble, 2015)
Mathematics for biologists (Grenoble, 2013, 2016)
1st year mathematics (Grenoble, 2016)
Complex analysis (Bern, 2012)
Differential Calculus (Lyon, 2009, 2010)
- Summer school *Immersion of a disc in the plane* (Dubna, 2014)
Hyperbolic geometry (ICTP Trieste, 2010)
Combinatorial game theory (Dubna, 2009)
Combinatorial game theory (Goutelas, 2008)
- Workgroup *From Euclidean surfaces to hyperbolic knots* (Lyon, 2017)
Stable commutator length (Bern, 2013)
- Prep. classes oral examinations (khôlles) from 2005 to 2008
- Olympiads preparation of the french IMO team from 2003 to 2008