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Born on January 31, 1988
French Nationality

Education

2011 – 2014 **PhD in mathematics** *Title: Explicit methods for arithmetic groups. Advisors: Karim Belabas and Andreas Enge* Université Bordeaux 1

2010 **Master's thesis** *Title: Computing fundamental domains for arithmetic Kleinian groups. Advisor: John Voight* McGill University, Montréal, Canada

2009 – 2010 **Master's degree in mathematics** Université Paris 7

2009 **Agrégation in mathematics** *Competitive examination for position in the French public education system, rank 7*

2007 **Admission to the École normale supérieure, Paris** *Computer science division, rank 1*

Professional experience

2014 – pres. **Research Fellow** University of Warwick *Funding: EPSRC grant "LMF: L-functions and modular forms" (PI John E. Cremona)*

2011 – 2014 **PhD student and teaching assistant** Université de Bordeaux *Funding: École Normale Supérieure*

Publications http://www.normalesup.org/~page/Recherche/Documents/documents-en.html

2016 **Group representations in the homology of 3-manifolds** *with Alex Bartel (University of Warwick, United Kingdom), preprint available at* http://arxiv.org/abs/1605.04866. 20 pages

2016 **Torsion homology and regulators of isospectral manifolds** *with Alex Bartel, J. Topol.* **9** (2016), no. 4, pp. 1237–1256. 20 pages

2016 **Appendix to The mod 2 cohomology rings of SL_2 of the imaginary quadratic integers** by Ethan Berkove (Lafayette College, Pennsylvania) and Alexander Rahm (National University of Ireland at Galway), *J. Pure and Appl. Algebra* **220** (2016), pp. 944–975. 3 pages

2015 **Computing arithmetic Kleinian groups**, *Math. Comp.* **84** (2015), no. 295, pp. 2361–2390. 30 pages

2014 **An algorithm for the principal ideal problem in indefinite quaternion algebras**, *LMS J. Comput. Math.* **17** (2014), no. suppl. A, pp. 366–384. 15 pages

Articles in preparation

2017 **Small generating sets for unit groups of division algebras**

2017 **Numerical experiments on the torsion Jacquet–Langlands conjecture** *with Haluk Şengün (University of Sheffield, United Kingdom)*

2017 **Computing the homotopy type of compact arithmetic manifolds** *with Michael Lipnowski (University of Toronto, Canada)*

Software http://www.normalesup.org/~page/software.html

2014 `SPIP`: *a Magma package for solving the principal ideal problem for maximal orders in indefinite quaternion algebras.* Available on demand ($\sim$ 1500 lines).

2013 – 2015 `CSA`: *a PARI library for computing with central simple algebras (Hasse invariants, maximal order, arithmetic).* Contained in the development version of PARI/GP ($\sim$ 4000 lines of code, $\sim$ 2000 lines of tests, $\sim$ 1300 lines of glue and documentation).

2012 – 2015 `KMF`: *a Magma package for computing the cohomology of arithmetic Kleinian groups with the action of Hecke operators.* Available on demand ($\sim$ 1000 lines).

2010 – 2013 `KleinianGroups`: *a Magma package for computing fundamental domains for arithmetic Kleinian groups* (v1.0, GPL v3+, $\sim$ 3000 lines).

Teaching

- As a postdoc in the University of Warwick (2014 – present): supervision of essays, 15h lectures.
  - Supervision of a 4th year essay on finite subgroups of units in division algebras (2016 – 2017).
  - Supervision of a 3rd year essay on the Weil conjectures (2016 – 2017).
  - Supervision of a 3rd year essay on the Riemann zeta function (2016 – 2017).
  - Supervision of a 3rd year essay on the Discrete Logarithm Problem (2014 – 2015).
  - Algebraic Number Theory (second half: units, class group, geometry of numbers). 15h, lectures (2016).
- As a teaching assistant in Université Bordeaux 1 (2011 – 2014): 160h exercise sessions, 18h lectures.
  - Tutor for two undergraduate students (2013 – 2014).
  - Fundamentals for Mathematics and Computer Science 1st year (basic logic, sets and maps, counting problems, introduction to arithmetic). 18h, lectures and exercises (2013).
  - Calculus 2nd year (series, normed vector spaces, function series, power series). 43h/year for 3 years, exercise sessions.
  - Coding and cryptography 1st year (arithmetic & RSA, symmetric cryptography, linear codes). 13h, exercise sessions (2013).
  - Algebra 1st year (linear algebra, polynomials). 19h, exercise sessions (2012).
- As a student in the École Normale Supérieure (2007 – 2011):
  - Oral examiner in mathematics (Lycées Janson de Sailly & Chaptal, Paris, 64h)
  - Oral examiner in computer science (Lycées Louis-le-Grand & Chaptal, Paris, 175h)
  - Tutor for three high school students in the Talens program (ÉNS, Paris, 120h)

Research visits

2016	**One week** University of Toronto, Canada. *Invited by Michael Linowski*
2016	**One week** Max Planck Institut, Bonn, Germany. *Invited by Günter Harder*
2016	**One week** University of Warwick, UK. *Hosting Michael Lipnowski*
2016	**One week** American University of Beirut, Lebanon. *Invited by Kamal Khuri-Makdisi*
2015	**One week** Duke University, NC, US. *Invited by Michael Linowski*
2015	**Three months** ICERM, Brown University, RI, US. *Special semester on Computational Aspects of the Langlands Programme*
2012	**One week** University of Warwick, UK. *Invited by Haluk Şengün*

Other mathematical activities

	Referee for mathematical journals *J. Number Theory (1 article), Int. J. Number Theory (1 article), Geom. Dedicata (1 article), Found. Comput. Math. (1 article), Math. Comp. (1 article)*
May 2013	**Organiser of the TNT day of PhD students in number theory** *with Pierre Chrétien and Nicolas Mascot* Bordeaux
Oct. 2012	**Coach for the future candidates to the International Olympiads in Informatics** *one week training session organised by Mathias Hiron* Paris, France

Other mathematical texts

2012	**Le théorème de Pólya** *with S. Baumard, popular science article published in the Revue de Mathématiques Spéciales*
2010	**L'équation de Pell-Fermat non commutative** *Introduction to the research field*
2010	**Computing fundamental domains for arithmetic Kleinian groups** *Master's thesis*
2009	**Identités hypergéométriques, algorithmes de Gosper et Zeilberger** *written to pass the Symbolic Computation course of Alin Bostan and Bruno Salvy*
2008	**Critère d'irréductibilité d'induites localement analytiques de** $\mathrm{GL}_2(\mathbb{Q}_p)$ *Short thesis for the first year of the Master*
2007	**Complexité de Kolmogorov et notion de mot aléatoire** *written to pass the Formal languages, Computability and Complexity course of Olivier Carton*

Honors and awards

2008	**Algorithms contest SWERC ACM-ICPC** Nuremberg, Germany *Teammates: Raphaël Marinier and Guillaume Claret, rank 5*
2007	**Algorithms contest SWERC ACM-ICPC** Lisbon, Portugal *Teammates: Mehdi Bouaziz and Bruno Le Floch, rank 19*

Research talks

Nov. 2016	**Computing the cohomology of compact arithmetic manifolds** MPIM, Bonn, Germany
Nov. 2016	**Torsion dans l'homologie de variétés isospectrales** Université Lille 1, France
Sept. 2016	**Computing good covers of compact arithmetic manifolds** King's College, London
July 2016	**Torsion homology of hyperbolic 3-manifolds in Jacquet–Langlands pairs and isospectral pairs** Luxembourg University
April 2016	**Torsion in the homology of isospectral 3-manifolds** American University of Beirut, Lebanon
Jan. 2016	**Torsion dans l'homologie et régulateurs de variétés isospectrales** IMJ, Paris, France
Dec. 2015	**Torsion dans l'homologie des groupes kleinéens arithmétiques** IRMAR, Rennes, France
Nov. 2015	**Torsion homology of arithmetic Kleinian groups** Amherst College, Massachusetts, US
Mar. 2015	**Aspects algorithmiques des groupes d'unités** Institut de Mathématiques de Marseille, France
Jan. 2015	**Central simple algebras for PARI** Institut de Mathématiques de Bordeaux, France
Dec. 2014	**Computing Klein modular forms** Université Clermont-Ferrand 2, France
Nov. 2014	**Computing Klein modular forms** University of Bristol, United Kingdom
Oct. 2014	**Computing Klein modular forms** University of Warwick, Coventry, United Kingdom
Sept. 2014	**Computing Klein modular forms** University of Sheffield, United Kingdom
Aug. 2014	**An algorithm for the principal ideal problem in indefinite quaternion algebras** Algorithmic Number Theory Symposium XI, GyeongJu, Korea
July 2014	**Computing Klein modular forms** Université Paris 13, France
June 2014	**Computing Kleinian modular forms** University of Warwick, Coventry, United Kingdom
Mar. 2014	**The principal ideal problem in quaternion algebras** CIRM, Luminy, France
Jan. 2014	**Central simple algebras for PARI** Laboratoire de Mathématiques de Besançon, France
Dec. 2013	**Groupes kleinéens arithmétiques et formes automorphes pour** GL(2)**.** IRMAR, France
Sept. 2013	**Computing Kleinian modular forms** Laboratoire de Mathématiques de Besançon, France
July 2012	**Algorithms for arithmetic Kleinian groups** Banff International Research Station, Canada
May 2012	**Calcul de groupes kleinéens arithmétiques** IRMAR, Rennes, France
Jan. 2012	**Quaternion algebras** Institut de Mathématiques de Bordeaux, France
Sept. 2011	**Algorithms for arithmetic Kleinian groups** Universität Heidelberg, Germany
Dec. 2010	**Calculs de domaines fondamentaux de groupes arithmétiques** IMB, Bordeaux, France

Popular science and study group talks

Nov. 2016	**The canonical subgroup** *Study group on p-adic modular forms* University of Warwick
June 2016	**Filtered (ϕ, N)-modules** *Study group on p-adic Hodge theory* University of Warwick
Feb. 2016	**Weil–Deligne representations** *Study group on Galois representations* University of Warwick
Nov. 2015	**Isospectrality, regulators and special value formulas** *ICERM peer-to-peer seminar* Brown University, Rhode Island, United States
June 2015	**Kato's Euler system** *Study group on Euler systems* University of Warwick
Feb. 2015	**Deformation conditions** *Study group on Galois deformations* University of Warwick
May 2013	**Le théorème de Pólya** Institut de Mathématiques de Bordeaux, France
Feb. 2013	**Calcul explicite de formes automorphes** Institut de Mathématiques de Jussieu, France
Oct. 2012	**La correspondance de Jacquet–Langlands** Institut de Mathématiques de Bordeaux, France
Oct. 2012	**Cryptologie ?** *with Nicolas Mascot* Institut de Mathématiques de Bordeaux, French Science Festival
Mar. 2012	**L'équation de Pell–Fermat non-commutative** *séminaire des doctorants de théorie des nombres* Institut de Mathématiques de Bordeaux, France
April 2010	**The Schoof–Elkies–Atkin algorithm** *Study group on points counting* McGill University, Montréal, Canada

Languages

French (native language), English (fluent), German (notions), modern Greek (notions).

Computer skills

Systems : Linux, Windows
Languages : LaTeX, Sage, Magma, C/C++, PARI library, GP, CAML/OCAML, Maple, XHTML, CSS, OOGL

Last update on 2017, January 3rd.