Marion Jeannin

Doctor in mathematics

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References

References can be provided on demand by:

- **Anne-Marie Aubert**,
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  Institut de Mathématiques de Jussieu,
  anne-marie.aubert@imj-prg.fr
- **Philippe Gille**,
  CNRS Research director
  Institut Camille Jordan, Lyon 1 University,
  gille@math.univ-lyon1.fr
- **Wushi Goldring**,
  Associate Prof., Wallenberg Academy Fellow
  Math. Department, Stockholm University,
  wgoldring@math.su.se

Education

- 2016-2020: **PhD in mathematics,** Supervisor: P. Gille, Lyon 1 University, France.
- 2013–2015: **MSc., Mathematics,** with minor in Physics (quantum physics, relativity and cosmology). EPFL, Lausanne, Switzerland.
  - **Master thesis,** *On the flat cohomology of commutative group schemes*, Supervisor : T. Szamuely. Rényi Institute, Budapest, Hungary.
  - **Semester project**, *The conifold algebra*, Supervisors: T. Hausel, B. Davison.
  - **Semester project**, *On Quillen-Suslin's theorem*, Supervisors: E. Bayer, D. Grimm.
- 2010–2013: **Bachelor, Mathematics.** EPFL, Lausanne, Switzerland.
  - **Semester project** *On Sylow's theorems*, Supervisor: J. Thévenaz.
  - **Semester project** *Homology of a topological space*, Supervisor: K. Hess Bellwald.
- 2008–2010: **Classes Préparatoires** (CPGE), Physics and chemistry (PCSI-PC). Lycée Champollion, Grenoble, France.
- 2005–2008: **Baccalauréat,** Scientific series, specialisation in mathematics. First-class honors. LGM, Meylan, France.

- From January 2024: **postdoctoral fellow at Stockholm University** under the supervision of W. Goldring (see my professional webpage). **From 11/03/2024 until 01/03/2025: On maternity leave.**
- From March 2022 to December 2023: postdoctoral fellow at Uppsala University under the supervision of S. Alsaody. Since September 2023: **reviewer for Mathscinet**.
- 23.05.2022–03.06.2022: Invited researcher at Institut de Recherche en Mathématique de Rennes (IRMAR).
- 01.10.2020–30.09.2021: Temporary lecturer (ATER) at University of Burgundy.

PhD

I defended my PhD thesis: *On the parabolic subgroups associated to a reductive group* on September the 21st, 2020. The defense has been allowed after the reports of:

- Anne-Marie Aubert, Institut Mathématiques de Jussieu,
- Vikraman Balaji, Chennai Mathematical Institute.

Members of the jury were:

- Anne-Marie Aubert (reviewer),
- Michel Brion (examinor),
- Philippe Gille (surpervisor),
- Julia Gordon (examinor),
- Anne Moreau (examinor),
- Bertrand Rémy (president).

Publications, preprints and work in progress

Publications, accepted articles

- Jeannin, M. (2023). **Integration questions in separably good characteristics.** Compositio Mathematica, 159(5), 890-932. doi:10.1112/S0010437X23007108. ArXiv link: `http://arxiv.org/abs/2102.13077`.

Prepublications

- **Sur les sous-groupes paraboliques associés à un groupe réductif. 2020.** (PhD manuscript), ⟨hal-02903773v2⟩.
- **Analogues of Morozov Theorem in characteristic $p > 0$.** (Preprint). ArXiv link: `https://arxiv.org/abs/2103.15806`.
- **Harder–Narasimhan games.** Joint work with Pr. Dr. H. Chen (Preprint). ArXiv link: `https://arxiv.org/abs/2306.08283`.

Additional courses attended

- June 2018: **Lectures on Bruhat–Tits' buildings**, Benoît Loisel.
- Spring 2018: **Introduction to derived algebraic geometry**, S. Morel.
- June 2017: **Conformal blocks, fusion rings and Verlinde formula**, E. Neher, S. Kumar.
- April 2017: **Atiyah-Singer theory**, P. Carrillo.
- Autumn 2017: **Modular forms**, G. Dospinescu.
- Spring 2015: **Algebraic K-theory**, J. Fasel.
- Autumn 2015: **Toric varieties**, K. Böröczky.
- Autumn 2015: **Introduction to Algebraic Geometry**, T. Szamuely.

Reading groups:

- Spring 2025: **Corner and Algebraic Groups**. Talk: *Homogeneous spaces.*
- Fall 2018 and Spring 2019: **PhD students reading group on spherical varieties**. Talks: *Simple spherical embeddings and coloured cones* and *Morphisms of spherical embeddings, co-connected inclusions and coloured subspaces.*
- Autumn 2017: **Introduction to reductive group schemes**. Talk : *Roots, coroots I.*
- Fall 2016 and spring 2017: **PhD students reading group on elliptic curves**. Talks: *Riemann-Roch Theorem*, *Formal group of an elliptic curve II*, *Twistings*, *Twistings of an elliptic curve.*
- Autumn 2016: **Introduction to affine group schemes and their Lie algebras**. Talk: *Tangent bundles and Lie algebras I.*
- Spring 2016: **Vector bundles, buildings and stability**. Talk : *On the Bruhat-Tits tree, relation with vector bundles over a curve I and II.*

Organisation of scientific events

- 17.10.2024–18.10.2024: **Co-organizer** de **Algebraic groups in a broad sense**. Université de Stockholm, Sweden.
- 14.05.2018–18.05.2018: **Co-organiser of Inter'Actions 2018**. ICJ, Lyon, France.

- Work in progress
  - **A dynamical approach of quasi-pinnings of reductive groups over arbitrary bases**, in preparation, joint work with Dr. C. Bravo and Dr. B. Loisel.
  - **On the homology of Bruhat–Tits group schemes over polynomial rings**, in preparation, joint work with Dr. C. Bravo and Dr. B. Loisel.
- Mathematical education publications
  - Jeannin, M. (2023). **Infinitesimal behaviour of groups and beyond.** (For university students). Hal: hal-04132150.

Teaching experience

- 01.2026–06.2026: **Lecturer**, Stockholm University (Sweden), **PhD course** on algebraic groups.
- 06.2025–08.2025: **Lecturer**, Stockholm University (Sweden), Abstract Algebra (for Third year Bachelor students).
- 09.2023–12.2023: **Lecturer** with Seidon Alsaody, Uppsala University (Sweden), **PhD course** on algebraic groups.
- 01.2023–03.2023: **Teaching Assistant**, Uppsala University (Sweden), Linear algebra II.
- 10.2020–09.2021: **ATER** (176h), University of Burgundy, math department (Dijon, France). Various exercise classes for Bachelor students, from various scientific major (mathematics, computer science, biology).
- 09.2019–09.2020: **Demi-ATER at math department**(96h), Lyon 1 University (Lyon, France). Various exercise classes for Bachelor students, from various major (mathematics, computer science) and oral examiner for preparatory classes to engineer schools students.
- 09.2016–09.2019: **Teaching assistant** (196h), Lyon 1 University, Lyon, France. Various exercise classes for Bachelor students, from various scientific major (mathematics, computer science, physics and economy) and oral examiner for preparatory classes to engineer schools students.
- 02.2013–06.2015: **Teaching assistant**, EPFL, Lausanne, Switzerland.

Administrative responsibilities

- 10.2019 – 09.2020: **Elected member at the Departement of mathematics**, UCBL, Lyon, France.

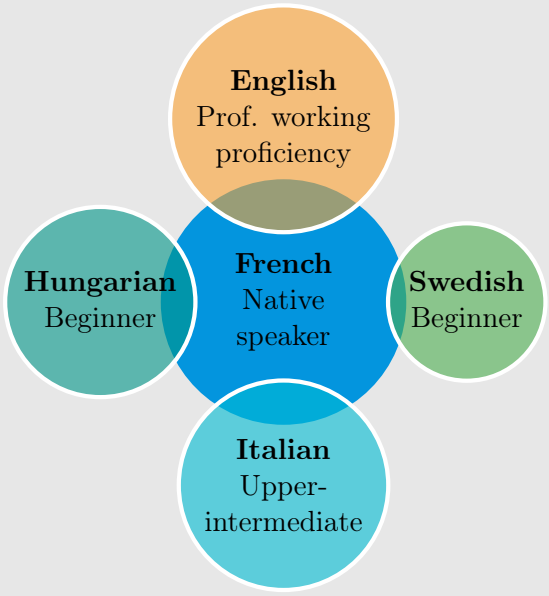
Scientific popularisation

- 06.12.2023: Popularisation talk at the **Autumn Summit of Uppsala Mathematics Association**: *"Infinitesimal behaviour of groups and beyond"*.
- Since April 2022: member of the press review team of Images des Maths.
- 27.02.2017–03.03.2017: Welcame an undergraduate student for a one week internship, with the association "un peu de bon science". ICJ, Lyon, France.
- 22.10.2016–23.10.2016: **APMEP days**, (association of teachers in mathematics), MathαLyon exhibition. INSA, Lyon, France.
- 13.10.2016–15.10.2016: **Science party,** MathαLyon exhibition. ICJ, Lyon, France.

Professional Experience (other)

- 03.2016–07.2016: **Research engineer**. ICJ, Lyon, France.
- 09.2013–09.2014: **Scientific collaborator at Simply Science**, writing scientific popularisation articles and quiz for children and teenagers. Lausanne, Switzerland.

Languages



Talks given

- 29.05.2026: **Advanced seminar in algebraic and complex geometry**, RUB, Bochum, Germany *On smooth integration of p-nilpotent Lie algebras in positive characteristic.*
- 11.12.2025: **Séminaire d'arithmétique à Lyon**, UMPA, ENSL, France *On smooth integration of p-nilpotent Lie algebras in positive characteristic.*
- 07.11.2025: **Nordic Mini-conference in Algebra, Analysis, and Geometry**, Mälardalen University, Eskilstuna, Sweden, *Generalized exponential and integration in positive characteristic.*
- 20.08.2025: **Characteristic p geometry in a broad sense**, workshop at Stockholm University, Sweden *Semistability of G-torsors and parabolic subgroups in positive characteristic.*
- 18.06.2025: **Algebra and geometry seminar**, Stockholm University and KTH, Sweden *On smooth integration of p-nilpotent Lie algebras in positive characteristic.*
- 28.05.2025: **MAM seminar**, Mälardalen University, Västerås, Sweden *Harder–Narasimhan games.*
- 26.04.2025: **Algebraic geometry and number theory**, Chalmers University, Gothenburg, Sweden *On smooth integration of some restricted p-Lie algebras.*
- 11.04.2025: **SPACE Seminar**, Institut Denis Poisson, Tours, France, *Jeux de Harder–Narasimhan.*
- 05.03.2025 to 07.03.2025: **Days of the Algebra research group**, Laboratoire Blaise Pascal, Clermont, France *Jeux de Harder–Narasimhan.*
- 14.12.2023: **GAGALie's seminar**, LMA, Poitiers, France *Approche dynamique de la stabilité des groupes réductifs en caractéristique $p > 0$.*
- 06.06.2023: **Seminar of École Polytechnique Fédérale de Lausanne**, EPFL, Suisse, *Semistability of G-torsors and parabolic subgroups in positive characteristic.*
- 23.03.2023: **Algebra Seminar of ICJ**, Saint-Étienne, France, *Classification des sous-algèbres de Lie restreintes maximales de l'algèbre de Lie d'un groupe réductif.*
- 23.03.2023: **Algebra Seminar of ICJ**, Saint-Étienne, France, *Classification des sous-algèbres de Lie restreintes maximales de l'algèbre de Lie d'un groupe réductif.*
- 18.10.2022: **Algebra Seminar of Uppsala University**, Sweden, *Analogues of Morozov's theorem: an integration question, from complex to positive characteristic settings.*

- 02.06.2022: **Séminaire de l'équipe de géométrie arithmétique**, IRMAR, Rennes, France, *Analogues du théorème de Morozov et semi-stabilité des groupes réductifs en caractéristique $p > 0$.*
- 08.02.2022: **Séminaire de l'équipe d'algèbre et géométrie**, LMV, Saint-Quentin, France, *Stabilité des G-fibrés.*
- 27.01.2022: **Quebec-Vermont Number Theory Seminar**, University of Montreal, Montreal, Canada, *Stability of G-bundles.*
- 15.04.2021: **Séminaire de géométrie arithmétique**, IRMAR, Rennes, France, *Intégration des algèbres de Lie p-nil en caractéristique $p > 0$.*
- 12.04.2021: **Séminaire de géométrie complexe de l'IECL**, IECL, Nancy, France, *Intégration des algèbres de Lie p-nil en caractéristique $p > 0$.*
- 04.12.2020: **Seminar of the GAAO's team**, Blaise Pascal University, Clermont-Ferrand, France, *On the integration of p-nil Lie subalgebras in char. $p > 0$.*
- 08.10.2020: **Seminaire d'algèbre**, ICJ, Saint-Étienne, France,

  On the parabolic subgroups associated to a reductive group.
- 01.10.2020–02.10.2020: **Bi-annual meeting Basel–Dijon–EPFL**, IMB, Dijon, France, *On the parabolic subgroups associated to a reductive group.*
- 03.02.2020–05.02.2020: **Colloque tournant of the research group Théorie de Lie (TLAG)**, IHP, Paris, France, *Analogues for Morozov's theorem in positive characteristic.*
- 09.01.2020: **AGL team meeting**, ICJ, Lyon, France, *Sur l'intégration des algèbres de Lie nilpotentes en caractéristique $p > 0$*, cancelled due to strikes.
- 27.03.2019: **First meeting of Dimers' ANR project**, ENS Lyon, Lyon, France, *Modèles de dimères et variétés de Calabi–Yau.*
- 13.03.2019: **Séminaire accessible**, Institut Fourier, Grenoble, France, *Dimer models and algebraic geometry.*
- 11.03.2019: **Séminaire des doctorant.e.s**, ICJ, Lyon, France, *Modèles de dimères et géométrie algébrique.*
- 17.05.2018–18.05.2018: **Meeting of the research group Théorie de Lie (TLAG)**, UJM, Saint-Étienne, France. *Quelques propriétés des algèbres de Lie paraboliques en caractéristique positive.*
- 14.11.2016: **PhD students seminar,** ICJ, Lyon, France.*Of lattices and trees.*

Conferences and Summer schools

- 26.06.2023–30.06.2023: **Representation theory in Lyon**, UCBL, Lyon, France.
- 05.06.2022–11.06.2022: **Oberwolfach Seminar: G-Complete, Reducibility, Geometric Invariant Theory and Spherical Buildings**, CMO, Oberwolfach, Germany.
- 26.08.2019–6.09.2019: **Buildings and Affine Grassmannians**, CIRM, Marseille, France.
- 19.08.2019–23.08.2019: **Perspectives in linear algebraic groups**, RUB, Bochum.
- 17.06.2019–21.06.2019: **Mini-cours à Lens**, Quadratic forms and axial algebras, Faculté Jean Perrin, Lens, France.
- 29.10.2018–2.11.2018: **Algebraic goups: Geometry, Actions and Structure**, ICJ, Lyon, France.
- 19.10.2018: **Séance spéciale du séminaire variétés rationnelles**, IHP, Paris, France.

- 03.07.2018–07.07.2018: **Ottawa-Lyon-São Paulo workshop on representation theory**, Carleton University, Ottawa, Canada.
- 30.04.2018–25.05.2018: **Algebraic groups and geometrisation of the Langlands Program**, Weeks 2 et 3 and mid-term conferences, ENSL, Lyon.
- 26.03.2018–27.03.2018: **Grenoble, Lyon, Saint-Étienne meeting days**, ICJ, Lyon.
- 27.11.2017, **Grenoble, Lyon, Saint-Étienne meeting day**, Institut Fourier, Grenoble.
- 21.09.2017–22.09.2017: **Days of the TLAG's research group**, Université Blaise Pascal, Clermont-Ferrand, France.
- 03.07.2017–07.07.2017: **Current topics in the theory of algebraic groups**, IMB, Dijon, France.
- 23.06.2017: **Grenoble, Lyon, Saint-Étienne meeting day**, ICJ, Lyon, France.
- 05.12.2016–07.12.2016: **Closing conference of ANR Gatho**, Algebraic groups and homological theories, Institut Henri Poincarré, Paris, France.
- 20.06.2016–24.06.2016: **Lyon Ottawa meeting days**, ICJ, Lyon, France.
- 30.05.2016–03.06.2016: **Lens summer school**, Commutative algebraic groups, hermitian K-theory and quadratic forms, Faculté Jean Perrin, Lens.

Last update: September 6, 2026