

Name: Philippe GILLE, born in Paris on 13 August 1968.

### **Education:**

- 2002: Habilitation à diriger des recherches, defended on 12 May 2002 at the University of Orsay (France). Title: Around Serre's conjecture II, Committee: Vladimir Chernousov, Jean-Louis Colliot-Thélène, Guy Henniart, Max-Albert Knus, Alexander Merkurjev, Fabien Morel and Jean-Pierre Serre.

-1991-1994: PhD in Mathematics defended on 22 June 1994 at the University of Orsay. Thesis advisor: Jean-Louis Colliot-Thélène, Title: R-equivalence and torsors on the affine line, Committee: Laurent Clozel, Alexander Merkurjev, Madabusi S. Raghunathan, Michel Raynaud, Jean-Pierre Serre and Jacques Tits.

- 1989-1991: Master of Mathematics at Université Joseph Fourier (Grenoble) and agrégation de mathématiques, national concourse of high school teachers, ranked 8.

- 1988-1992: Student at the Ecole normale supérieure of Lyon.

### **Positions:**

- From October 2013, senior CNRS researcher at Institut Camille Jordan (Lyon).

- From November 1 of 2013 to October 30 of 2015, senior researcher in the Simion Stoilow Institute of Mathematics of the Romanian Academy (IMAR, Bucharest) as head of the Idei project "Arithmetic homogenous spaces".

-From September 2006 to September 2013, senior researcher at Ecole normale supérieure (Paris) and CNRS (Center of National Scientific Research of France), Head of the "Algebra and Geometry" research team from September 2008 to 2012.

- 1995-2006: CNRS researcher at Orsay University; from 2000 to 2003, scientific secretary of the national committee of the mathematical section of CNRS.

**Awards:** G. de B. Robinson Award in 2015 for the paper "Octonions algebras over rings are not determined by their norms" published in the Canadian Bulletin of Mathematics.

**Other professional activities:** Teaching: From 2006, supervision of lecture groups (e.g. about representation theory, K-theory, fundamental groups in algebraic geometry) of students in Ecole normale

and short courses in algebra, for example quadratic form theory.

Master lectures in Fields Institute (Toronto, 2013), Institut Camille Jordan (2017, 2018, 2020).

Lectures in April 2019 at the University of Beijing on "Torsors over local fields".

Lectures in 2021 on the IAS online summer school on torsors over algebraic curves ; the in person edition will held in July 2024 in Park City.

Referee for numerous journals, book publishers and grants.

### **Organization of scientific events:**

- In 2021 and 2025, coorganizer of the Oberwolfach workshop on Algebraic Groups,

- In December 2023, coorganizer of the conference in memory of Jacques Tits at the Collège de France.

- In June 2023, coorganizer of the workshop « Representation theory in Lyon ».

- From 2020 to 2022, coorganizer of the online seminar “Quadratic forms, Linear algebraic groups and Beyond”.
- In September 2019, organizer of the Luminy summer school “Buildings and Affine Grassmannians”.
- In springs 2018 (Lyon), coorganizer of the thematic trimester “Groupes algébriques et géométrisation du programme de Langlands”.
- In 2016, organization with D. Roy of the first “Rencontres Lyon/Ottawa” in Algebra and Number Theory. I
- In 2014, organization with M. Brion, B. Rémy, N. Ressayre and A. Thuillier of the half semester “Groupes à Lyon”.

### **Administrative responsibilities:**

- From 2024, principal investigator of the PNRR project « Group schemes, root systems, and related representations » at the Mathematical Institute of the Romanian Academy (Bucharest).
- From 2019 to 2023, head of the Lyon/Saint-Etienne node of the CNRS network Tlag (Algebraic and Geometric Lie Theory) gathering 19 people.
- In 2018, head of International Relations Committees of Lyon Faculty of Sciences and from 2017 member of the council of Lyon Faculty of Sciences.
- From 2013 to 2015, director of the romanian project Idei “Arithmetic homogeneous spaces”.
- From 2009 to 2012, main coordinator of the research project ANR PEPR (National Research projects).
- From 2008 to 2012, head of the research team “Algebra and Geometry” of Ecole normale of Paris.

### **One month research visits:**

- 2023: Invited in Scoala normala superiora (Pisa).
- 2019: University of Beijing.
- 2014: “Distinguished visitor in Ottawa University”.
- May 2014 : Ann Arbour, University of Michigan (USA).

**PhD students:** Six Phd thesis directed from 2006 to 2024 : Tim Wouters (2010), Alexander Steinmetz (2011), Ting-Yu Lee (2013), Alexandre Lourdeaux (2020), Marion Jeannin (2020). Matia Pirani (2024 codirection with T. Szamuely). Margot Bruneaux and Anis Zidani started in 2023.

**Post-docs:** Rony Bitan (2015-2016), Seidon Alsaody (2016-2018) and Cameron Ruether (2024-2026).

**Funded projects :** Project PNRR in Bucharest from 2024 and project Idei in Bucharest from 2013 to 2015. Member of the ANR (National research agency of France) projects GATHO and GEOLIE. Main coordinator of the ANR project PEPR (Rational points and integral points). The project which runs from January 2009 to December 2012 and gathered 14 people of arithmetic geometry.

**Publications:** 57 research papers, a reference book on Galois cohomology written in collaboration with T. Szamuely (with a new edition in 2017) and the lecture notes “Semisimple Groups in cohomological dimension  $\leq 2$ ”.

During the period of 2014-2024, 23 research papers written with 14 distinct collaborators on group schemes, Galois cohomology and non commutative algebras.

*Most important scientific publications from 2014-2024 period.*

1) R. Parimala, V. Suresh, Local triviality of  $G$ -torsors, *Mathematische Annalen* 380 (2021), 539-567.

2) S. Alsaody, P. Gille, Isotopes of Octonion Algebras and Triality, *Advances in Mathematics* 343 (2019), 864-909.

3) V. Chernousov, P. Gille, A. Pianzola, A classification of torsors over Laurent polynomial rings, *Commentarii Mathematici Helvetici* 92 (2017), 37-55.

4) V. Chernousov, P. Gille, A. Pianzola, Conjugacy theorems for loop reductive group schemes and Lie algebras, *Bulletin of Mathematical Sciences* 4 (2014), 281-324.

5) P. Gille, O. Gabber et L. Moret-Bailly, Fibrés principaux sur les corps henséliens, *Algebraic Geometry* 5 (2014), 573-612.

*Monographs:* 1) P. Gille, T. Szamuely, Central simple algebras and Galois cohomology, Cambridge Studies in Advanced Mathematics, 101. Cambridge University Press, Cambridge, 2006, new extended edition in 2017.

2) P. Gille, Galois cohomology of semisimple algebraic groups in cohomological dimension  $\leq 2$ , LNM 2238 (2019), Springer.

### **Collaborations.**

Main collaborators: Vladimir Chernousov (Edmonton), Ting-Yu Lee (Taiwan), Laurent Moret-Bailly (Rennes), Erhard Neher (Ottawa), R. Parimala (Atlanta), Arturo Pianzola (Edmonton), Anastasia Stavrova (Saint Petersburg), Tamás Szamuely (Budapest).

### **Selection of invited talks at conferences and workshops since 2013.**

\* Toronto (March - April 2013): Lectures on reductive group schemes.

\* Botosani (November 2013): Conference of the Romanian Mathematical Society, Deformatii de poliedre.

\* Los Angeles (IPAM, 2014): Conference on Zariski dense subgroups.

\* Luminy (2015): Conference on algebraic groups and related topics.

\* Sanya (China, 2016): Number Theory Conference.\* Algebraic Groups, Oberwolfach, April 24 to 28 (2017).

\* Emory Conference on Higher Obstructions to Rational Points, Atlanta, May 15-19 mai of 2017.

\* Ottawa-Lyon-Sao Paulo Workshop on Representation Theory, Ottawa, July 3-7 of 2018,

\* Affine Algebraic Groups, Motives and Cohomological Invariants, Banff, September 16-21 of 2018.

\* Brazil-France mathematical congress, Rio de Janeiro, Impa, July 15-19 of 2019.

\* The Georgia Algebraic Geometry Symposium, Atlanta, April 1-22 of 2022.

\* The pursuit of symmetry: A conference in honour of the 80th birthday of Robert V. Moody Fields, Toronto (Fields Institute), April 25-29 of 2022.

\*Arithmetic Geometry & Algebraic Groups at UVA, Charlottesville, May 24-28 of 2023.

\*Motives and Invariants: Theory and Applications to Algebraic Groups and their Torsors, Banff, du 8 au 13 octobre 2023.

**Selection of invited talks** at seminars since 2010 in : Beijing (2019), Bucharest (2019), Dijon (2017, 2022), Edmonton (2015), Grenoble (2012, 2021), Lausanne (2022), Orsay, Louvains la Neuve (2004), Manaus (2021), Munich (2013), Ottawa (2013, 2014), Québec (2015), Rennes (2007), Saint-Petersbourg (2021), Villenaneuse (2018). Colloquiums in Bordeaux (2024), Bucarest (2023) and Iasi (2024).

**Jury member** of the Phd of the following people: Raphaël Fino (Paris, 2014), Giancarlo Lucchini Arteche (Orsay, 2014), Albert Gunawan (Leiden, 2015), Sébastien Miquel (2017), Vlere Mehmeti (2019), Alice Bouillet (2023). Jury member of the habilitation of Gabriel Dospinescu (2022).

Referee and member of jury for the thesis of Neha Hooda (New Dehli, 2015), Bruno Laurent (2017), Yisheng Tian (2020), Ning Guo (2021), Arnab Kundu (2023), Hoawen Zhang (2023) and Matilde Maccan (2024). Referee and jury member of the habilitation Cyril Demarche (2018), Ronn Terpereau (Dijon, 2022), and of Charles de Clercq (2023).

**Editor:** From 2015 to 2021 of the journal "Annals of the Alexandru Ioan Cuza University – Mathematics". From 2015, associate editor to the Canadian Journal of Mathematics and to the Canadian Bulletin of Mathematics, from 2020 associate editor to Manuscripta Mathematica. Invited editor in 2022 and 2023 in Journal of Algebra for the special volume dedicated to the memory of Jacques Tits.

**Participation to hiring committees** in various places (Grenoble, Lyon, Montpellier, Versailles, Orsay). Member of the scientific council of Institute Camille Jordan (from 2016 to 2020).

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