

**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 University Pierre et Marie Curie (Paris) 2008, Linear algebraic groups), in Fields Institute (2013, Reductive group schemes) and in Institute Camille Jordan (2017, 2018).

*Referee* for numerous journals, book publishers and grants.

*Organization of scientific events:* 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. In 2014, organization with M. Brion, B. Rémy, N. Ressayre and A. Thuillier of the half semester “Groupes à Lyon”. In 2011, summer school “Introduction to group schemes” Luminy, France). In 2010, special day in the memory of François Bruhat.

In 2008, organizer of the session “Linear algebraic groups and related topics” in the Canadian-French mathematical congress (Montréal). From 2000 to 2012, organization of the seminar “Rational varieties” in Ecole normale in Paris.

*Administrative responsibilities:* From 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, head of the research team “Algebra and Geometry” of Ecole normale of Paris.

One month research visits: 2014: “Distinguished visitor in Ottawa University”; 2012 and 2010: Buenos Aires (Argentina); november 2010: Bucharest (Romania), lectures on quadratic forms at the Ecole normale supérieure of Bucharest.; May 2008 : Atlanta and Ann Arbour (USA); March 2007, Beijing (China): lectures on Linear Algebraic Groups at the Morningside Center of Mathematics; 2005-2009: several visits in Edmonton (Canada); 2002: Bombay and Lausanne.

*PhD students:* 3 Phd thesis directed from 2006 to 2016 : Tim Wouters (2010), Alexander Steinmetz (2011) and Ting-Yu Lee (2013). Two running Phd students: Marion Jeannin and Alexandre Lourdeaux.

Post-docs: Rony Bitan (2015-2016) and Seidon Alsaody (2016-2018).

*Funded projects :* Member of the running 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.

During the academic year 2003-2004, Marie-Curie fellow for visiting the Rényi Institute (Budapest, Hungary); the project was the book “Central Simple algebras and Galois Cohomology published in 2006 by Cambridge University Press. Also in 1997, there were 9 months Marie-Curie fellowship for

visiting the Cambridge University (United Kingdom).

*Publications:* 21 research papers and a reference book on Galois cohomology written in collaboration with T. Szamuely with a new edition in 2017. During the period of 2006-2018, 23 research papers written with 11 distinct collaborators on algebraic groups and Galois cohomology. Two surveys, the first one about Serre's conjecture II and a Bourbaki seminar on the Kneser-Tits problem (containing two important original results) occur also in the publication list.

***Most important scientific publications from 2008-2018 period.***

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

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

P. Gille, Octonions algebras over rings are not determined by their norms, *Bulletin Canadien de Mathématiques* 57 (2014), 303-309.

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

P. Gille, A. Pianzola, Torsors, reductive group schemes and extended affine Lie algebras, *Memoirs of AMS* 1063 (2013).

P. Gille, Serre's conjecture II, a survey, "Quadratic forms, linear algebraic groups, and cohomology", *Developments mathematics* 18 (2010), 41-56, Springer.

P. Gille, Z. Reichstein, A lower bound on the essential dimension of a connected linear group, *Commentarii Mathematici Helvetici* 84 (2009), 189-212.

P. Gille, Le problème de Kneser-Tits, exposé Bourbaki n0 983, *Astérisque* 326 (2009), 39-81.

**Monographs:** 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. In preparation: Galois cohomology of semisimple algebraic groups over fields of separable cohomological dimension  $\leq 2$ .

### **Collaborations and conference talks.**

*Main collaborators:* Constantin Beli (Bucarest, Romania), Vladimir Chernousov (Edmonton), Ting-Yu Lee (Lausanne), Laurent Moret-Bailly (Rennes), Arturo Pianzola (Edmonton), Anne Quéguiner-Mathieu (Villetaneuse), Zinovy Reichstein (Vancouver), Tamás Szamuely (Budapest, Hungary).

Selection of invited talks at conferences and workshops since 2008.

- \* Hyderabad (India, 2008), conference in honor of R. Parimala.
- \* Oberwolfach (Germany, May 2009), Quadratic Forms and Linear Algebraic Groups.
- \* Oberwolfach (Germany, November 2010), conference “Infinite dimensional Lie theory”.
- \* Edinburgh (Scotland, January 2011) conference “Torsors, theory and applications”.
- \* Atlanta (Emory, May 2011), conference “Ramification in algebra and geometry “.
- \* Mainz (Germany, July 2011), conference “Motives, algebra and arithmetic “.
- \* Rennes (France, June 2012): Conference “Pencils, formulas and stacks”.
- \* Banff (Canada, October 2012): Lie algebras, torsors and cohomological invariants,
- \* 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 (Chine, 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.
- \* Lie theory, cohomology, and geometry in Wildrose country, A conference in honour of Vladimir Chernousov and Arturo Pianzola, Edmonton, August 21-25 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,

Selection of invited talks at seminars since 2008 in : Ann Arbor (Michigan University, 2008, 2016), Atlanta (Emory, 2008), Besançon, Bucharest (2013), Buenos Aires (CAECE, 2010, 2012), Cambridge (2009), Edmonton (2009, 2015), Grenoble (2010, 2012), Iasi (Cuza University, 2010), Zurich (ETH), Orsay, Leuven (2010), Louvains la Neuve (2004), Munich 2008, 2013), Ottawa (2013, 2014), Québec (2015), Rennes (2007), Valparaiso (Catholic University, 2012), Villeneuve (2009, 2018).

*Referee and/or jury member of the Phd of the following people:* C. Demarche (Orsay, 2009), M. Huruguen (Grenoble, 2011), Raphaël Fino (Paris, 2014), Giancarlo Lucchini Arteche (Orsay, 2014), Albert Gunawan (Leiden, 2015), Neha Hooda (New Dehli, 2015). President of the jury of B. Calmès' habilitation (Lens, 2011). Referee and jury member of the habilitations of Anne Cortella (Besançon, 2010) and Anne Quéguiner-Mathieu (Villetaneuse, 2006).

*Editor* from 2015 of the journal "Annals of the Alexandru Ioan Cuza University – Mathematics".

Participation to hiring committees in various places (Besançon, Lyon, Montpellier, Versailles, Orsay); president of an evaluation committee (Amiens 2011). Member of the scientific council of Institute Camille Jordan (from 2016).

---

