

Damien Gaboriau

Curriculum Vitae

- Directeur de recherche au CNRS
École normale supérieure de Lyon, 69007 Lyon, France
Center for Mathematical Modeling, Santiago - Chile (2016-2017)
 - Professeur Chargé de Cours
École Polytechnique, 91128 Palaiseau Cedex (2005-2016)
- WEB page: <http://perso.ens-lyon.fr/gaboriau/home-en.html>
email: damien.gaboriau@ens-lyon.fr

Employment

- 2003-present **Director of Research at the C.N.R.S.**, *École Normale Supérieure*, Lyon, France.
- 2016-2017 **Director of Research at the C.N.R.S.**, *Center for Mathematical Modeling*, Santiago, Chile.
- 2005-2016 **Associate Professor**, *École Polytechnique*, Palaiseau.
- 2005-2009 **Chairman**, *of the Research Mathematics Department*, École normale supérieure, Lyon.
- 1994-2003 **Research Associate (Chargé de Recherche) at the C.N.R.S.**
 - 1997-2003 *École Normale Supérieure*, Lyon
 - 1994-1997 *Université Paul Sabatier*, Toulouse
- 1996-1997 **Research Associate.**
 - FAPERJ, Universidade Fed. Fluminense (Niteroi, Brasil)
 - Universidad Nacional Autónoma de México Morelos (Cuernavaca, Mexico)
- 1993-1994 **Assistant Professor (Agrége Préparateur)**, *École Normale Supérieure*, Lyon.

Education

- 2002 **Habilitation à diriger des recherches (HDR)**, *ENS*, Lyon, Title: *Arbres, groupes, quotients*.
- 1993 **PhD**, *Univ. Paul Sabatier*, Toulouse, Title: *Dynamique des systèmes d'isométries et actions de groupes sur les arbres réels*.
Advisor: G. Levitt.
- 1990 **Master**, *Univ. Paul Sabatier*, Toulouse.

- 1989 **Agrégation de Mathématiques.**
 1986 **ENS Cachan.**

Prizes and Distinctions

- 2012 Fellow of the American Mathematical Society.
 2011 Bourbaki seminar presented by C. Houdayer: *Invariant percolation and measured theory of nonamenable groups (after Gaboriau-Lyons, Ioana, Epstein)*.
 2010 Invited speaker at the International Congress of Mathematicians, Hyderabad, India, section "Functional analysis and applications".
 2004 Bourbaki seminar presented by A. Connes: *Nombres de Betti L^2 et facteurs de type II_1 (after D. Gaboriau et S. Popa)*.
 2003 G. Sand and G. Triossi prize of the French Academy of Sciences.

Supervision of PhD students

- Mikaël Pichot PhD 2005: "Quasi-périodicité et théorie de la mesure".
 Currently: Assitant Professor at Mc Gill University in Montreal, Quebec, Canada.
- Aurélien Alvarez PhD 2008: "Une théorie de Bass-Serre pour les relations d'équivalence et les groupoïdes boréliens".
 Currently: Assitant Professor (Maître de conférences) at the laboratoire MAPMO, University of Orléans.
- Bruno Duchesne PhD 2011: "Des espaces de Hadamard symétriques de dimension infinie et de rang fini".
 Currently: Assitant Professor (Maître de conférences) at the Institut Elie Cartan, University of Nancy.
- Pierre-Adelin Mercier PhD 2011: "Graphages à type d'isomorphisme prescrit".
- François Le Maître PhD 2014: "Sur les groupes pleins préservant une mesure de probabilité". (Co-adviser Julien Melleray, Lyon.)
 Currently: Assistant Professor (Maître de conférences) at IMJ, University of Jussieu, Paris.
- Alessandro Carderi PhD 2015: "Groups, Actions and von Neumann algebras".
 Currently: Post-doc in Leibzig, Germany.
- Mohamed Bouljihad PhD 2016: "Propriété (T) de Kazhdan relative à l'espace". (Co-adviser Bachir Bekka (Rennes)).
 Currently: Professeur en CPGE, Île de la Réunion, France

Lison Current PhD Student. Co-adviser Romain Tessera (Orsay).
Jacoboni

Editorial Board

- 2004-present *Astérisque*, SMF.
2008-present *Confluentes Mathematici*, initially published by World Scientific. Since January 2013 CM is an open access electronic journal hosted by CEDRAM.
2006-present *Groups, Geometry and Dynamics*, EMS.
2008-present *Journal of Topology and Analysis*, World Scientific.

Events Organization

- 2009-2012 **PI of the Research Grant ANR Project AGORA**, “Groups, Actions and Operator Algebras”, (ANR-09-BLAN-0059, NT09461407).
2014-2019 **co-PI of the Research Grant ANR Project GAMME**, “Groups, Actions, Metrics, Measures and Ergodic theory”, (ANR-14-CE25-0004 GAMME).
Oct 2008 Oberwolfach workshop. Von Neumann Algebras and Ergodic Theory of Group Actions. (Co-organizers Dietmar Bisch, Vaughan Jones and Sorin Popa).
Oct 2010 Oberwolfach workshop. Actions and invariants of residually finite groups. (Co-organizers Miklos Abert (Chicago) and Fritz Grunewald (Düsseldorf)).
Oct 2013 Oberwolfach workshop. Group theory, measure, and asymptotic invariants. (Co-organizers Miklos Abert (Budapest) and Andreas Thom (Leipzig)).
Sept 2012 SAG Atlantic Geometry Seminar: Perspectives on Orbital Equivalences and Applications, Castro-Urdiales, Spain
Nov 2011 Meeting GAG, “Géométrie et Actions de Groupe”, ENS Lyon
Apr-Jul 2011 Trimester: Thematic program “Von Neumann Algebras and Ergodic Theory of Group Actions”. Institut Henri Poincaré. Paris. (Co-organizers Sorin Popa and Stefaan Vaes). <http://wis.kuleuven.be/ihp2011/index-fr.html>
July 2015 Conférence “Geometries in action”, at the ENS-Lyon, a conference in honor of Étienne Ghys. (280 participants). <http://geometrie.math.cnrs.fr/>

- July 2015 Conférence “Impacts of geometric group theory”, (Co-organizers Goulnara N. Arzhantseva, Nicolas Bédaride, Arnaud Hilion). Marseille, CIRM. <http://programme-scientifique.weebly.com/1224.html>
- Since 2008 Organizer of the working group “Dynamique mesurable” at the ENS Lyon. Measurable dynamics, Borel dynamics, von Neumann algebras, Geometry, Groupe theory, Representations, Descriptive set theory, Percolation,...
<http://www.umpa.ens-lyon.fr/~gaboriau/GdT/GdT-prog.html>
- Since 2007 GDRE Grefi-Genco. Scientific committee, responsable for the scientific themes: non commutative integration– Free probabilities, Ergodic theory and operator algebras.
- Since 2006 GDR 2947 “Géométrie non Commutative”. Responsable de la direction "Théorie ergodique et systèmes dynamiques" dans la thématique "Intégration non commutative".
<http://gdrnc.math.cnrs.fr/>
- 2006-2011 GDR 3066 “Geometry, Dynamics and Group representations”.
- Since 2002 Goutelas Mathematical Week-ends
<http://www.umpa.ens-lyon.fr/~gaboriau/Goutelas/Goutelas.html>
- 2003-2015 Séminaire Tripode
<http://math.univ-lyon1.fr/~tripode/>
- Feb. 2016 Trimester program at the ESI, Vienna. “Measured group theory”. http://www.uni-math.gwdg.de/schick/ESI16/esi16_1.html
- Aug. 2016 Oberwolfach workshop. Measured Group Theory. (Co-organizers Miklos Abert (Chicago) and Andreas Thom (Leipzig)).

To happen

- 2017-2018 LABEX Thematic Semester at Lyon. “Graphs, Groups and Dynamics”.

Responsibilities within Academic Institutions

- 2005-2009 **Director**, of the *Research Mathematics Department*, École normale supérieure, Lyon.
- 2009-2012 **PI of the Research Grant ANR Project AGORA**, “Groups, Actions and Operator Algebras”, (ANR-09-BLAN-0059, NT09461407).
<http://www.umpa.ens-lyon.fr/~anragora/>

2014-2019 **co-PI of the Research Grant ANR Project GAMME**, “Groups, Actions, Metrics, Measures and Ergodic theory”, (ANR-14-CE25-0004 GAMME).
<http://math.unice.fr/%7Eindira/GAMME.html>

2015-present **Executive committee of the Labex (Laboratoire d’excellence) MiLyon**, Lyon.

2009-2016 **Math. Department committee**, École Polytechnique, Palaiseau.

2008-2014 **Scientific Council of the FRUMAM**, *Fédération de Recherche des Unités de Mathématiques*, Marseille, FR 2291 CNRS.

2011-2016 **Steering Committee of the FMJH**, *Fondation Mathématiques Jacques Hadamard*, Paris-Sud, (Orsay, IHÉS, Polytechnique, ENS Cachan,...).

2000-2002 **National Committee of the Scientific Research, France**, (CoNRS), section 01.

Since 1999 **Many Hiring committees**, Pure and Applied Math. (sections 25, 26).

2007 **Evaluation Committee**, (*President*), of the “laboratoire de mathématiques d’Amiens” (LAMFA).

2010-2011 **AERES Evaluation Committee**, (*President*), of the “laboratoire de mathématiques de Rennes” (IRMAR).

Since 2001 **Selected Scientific Assessments**, *ERC, ACI, ANR, NSF (USA), FNRS (Switzerland), ISF (Israel Science Foundation), UK Research Council, Regions, Comité National de la Recherche Scientifique,*

Selected teaching

2005-2016 Professeur chargé de cours, École Polytechnique, Palaiseau. Topics: Systèmes Dynamiques, Théorie de la Mesure, Distributions, Équations Différentielles.

Dec. 2014 School on orbit equivalence and related fields, Santiago, Chili. “Measurable Group Theory” (Series of 4 lectures)

Oct. 2014 Workshop: Boundaries of groups and L^p -cohomology. Université de Lille 1, France. Mini-course on ℓ^2 -Betti numbers (Series of 3 lectures)

- Oct. 2013 Series of 8 Lectures, Master class on Ergodic Theory and von Neumann algebras. University of Copenhagen.
Topic: Around the Orbit Equivalence Theory of the Free Groups.
- Jul. 2013 Series of 3 Lectures. 3rd Summer School on Operator Theory. Samos, Greece.
Topic: A Measurable Solution to von Neumann's Problem, Measured Group Theory and Percolation.
- 2011-2012 Advanced Master Courses. Ens-Lyon.
Topic: Percolation and measured group theory.
- 2011 Series of Advanced Lectures, in the frame of the thematic program *Von Neumann algebras and ergodic theory of group actions* at the Institut Henri Poincaré, Paris.
Topics: Measured group theory and percolation on graphs
- Dec. 2009 Colloque "Operator Algebras, Groups and Geometry". CIRM, Marseille, France.
Topic: Expository lectures on Measured Equivalence Relations.
- Aug. 2009 Summer School, "Ergodic theory of group actions", in Göttingen, Germany.
- 2008-2009 Advanced Master Course. Ens-Lyon.
Topic: Équivalence orbitale, Théorie mesurable des groupes et algèbres de von Neumann.
- Dec 2008 Intensive course, Jerusalem, Israel.
Topic: Orbit Equivalence, von Neumann Algebras, Measure Equivalence
- Feb 2008 Intensive course, Chennai, India. Workshop at IMSc Chennai.
Topic: Orbit Equivalence, Geometric Group Theory and von Neumann Algebras

Selected publications

- D. Gaboriau, G. Levitt, F. Paulin. *Pseudogroups of isometries of \mathbf{R} and Rips' theorem on free actions on \mathbf{R} -trees*, Israel J. Math. **87** (1994) 403–428.
- D. Gaboriau, G. Levitt. *The rank of actions on \mathbf{R} -trees*, Ann. Scien. Ec. Norm. Sup. (4) **28** (1995) 549–570.
- D. Gaboriau. *Dynamique des systèmes d'isométries : sur les bouts des orbites*, Invent. Math. **126** (1996) 297–318.
- D. Gaboriau, A. Jägger, G. Levitt, M. Lustig. *An Index for counting fixed points of automorphisms of free groups*, Duke Math. J. (3) **93** (1998) 425–452.

- D. Gaboriau. *Coût des relations d'équivalence et des groupes*, Invent. Math., (1) **139** (2000) 41–98.
- D. Gaboriau, F. Paulin. *Sur les immeubles hyperboliques*, Geom. Dedi., **88** (2001) 153–197.
- D. Gaboriau. *Invariants L^2 des relations d'équivalence et de groupes*, Publ. Math. I.H.É.S., **95** (2002) 1, 93–150.
- N. Bergeron, D. Gaboriau. *Asymptotique des nombres de Betti, invariants ℓ^2 et laminations*, Comment. Math. Helv., **79** (2004), 362–395.
- D. Gaboriau, S. Popa. *An uncountable family of non orbit equivalent actions of \mathbf{F}_n* , J. of the A.M.S., **18** (2005), 547–559.
- D. Gaboriau. *Invariant Percolation and Harmonic Dirichlet Functions*, G.A.F.A., **15** (2005) 5, 1004–1051.
- D. Gaboriau. *Examples of Groups that are Measure Equivalent to the Free Group*, Erg. Th. & Dyn. Syst., (06) **25** (2005), 1809–1827.
- D. Gaboriau, R. Lyons. *A measurable-group-theoretic solution to von neumann's problem*, Invent. Math., **177** (2009), 533–540.
- D. Gaboriau. *Orbit Equivalence and Measured Group Theory*, Proceedings of the ICM (Hyderabad, India, 2010), Vol. III, Hindustan Book Agency (2010), 1501-1527.
- D. Gaboriau. *Relative Property (T) Actions and Trivial Outer Automorphism Groups*, J. of Functional Analysis, **260** (2011), no. 2, 414–427.
- A. Alvarez, D. Gaboriau. *Free products, Orbit Equivalence and Measure Equivalence Rigidity*, Groups, Geometry and Dynamics, **6** (2012), no. 1, 53–82.
- D. Gaboriau, R. Tucker-Drob. *Approximations of standard equivalence relations and Bernoulli percolation at p_u* , preprint.
arXiv: <http://arxiv.org/abs/1509.00247>
- D. Gaboriau, B. Seward. *Cost, ℓ^2 -Betti numbers and the sofic entropy of some algebraic actions*, preprint.
arXiv: <http://arxiv.org/abs/1509.02482v2>
- D. Gaboriau, A. Ioana, R. Tucker-Drob. *Cocycle superrigidity for translation actions of product groups*, preprint.
arXiv: <http://arxiv.org/abs/1603.07616>
- D. Gaboriau. *Entropie sofique, d'après Lewis Bowen, David Kerr et Hanfeng Li*, Séminaire Bourbaki.
arXiv: <https://arxiv.org/abs/1607.06454>