

Camille HORBEZ

CNRS  
Laboratoire de Mathématiques d'Orsay  
Université Paris Sud, Bâtiment 425  
F-91405 Orsay Cedex, France

Tel: +33169155776  
Email: [camille.horbez "at" math.u-psud.fr](mailto:camille.horbez@math.u-psud.fr)  
Webpage: <https://www.math.u-psud.fr/horbez/>

## Appointments

---

2016-	<b>Chargé de recherches</b> CNRS - Université Paris-Saclay
Aug. 2015 - Jan. 2016	<b>Post-doc</b> University of Utah

## Education

---

2012-2014	PhD thesis at the University of Rennes 1 Advisor: Vincent Guirardel Subject: <i>Random walks on <math>Out(F_N)</math> and automorphism groups of free products</i>
2011-2012	Second year of master in mathematics, Université Paris XI - Summa cum laude Master thesis realized at Cornell University, Ithaca, NY Advisor: Karen Vogtmann
2009-2012	École Normale Supérieure, Paris

## Awards

---

- **Kamil Duszenko Award**, Wrocław Mathematicians Foundation (2020)
- **Cours Peccot**, Collège de France (2017-2018)

## Papers

---

### Preprints

- *Measure equivalence rigidity of the handlebody groups*, with Sebastian Hensel, arXiv:2111.10064 (2021)
- *Orbit equivalence rigidity of irreducible actions of right-angled Artin groups*, with Jingyin Huang, arXiv:2110.04141 (2021)
- *Measure equivalence rigidity of  $Out(F_N)$* , with Vincent Guirardel, arXiv:2103.03696 (2021)

- *Measure equivalence classification of transvection-free right-angled Artin groups*, with Jingyin Huang, arXiv:2010.03613 (2020)
- *Proper proximality in non-positive curvature*, with Jingyin Huang and Jean Lécureux, arXiv:2005.08756 (2020)
- *Cocycle superrigidity from higher rank lattices to  $\text{Out}(F_N)$* , with Vincent Guirardel and Jean Lécureux, arXiv:2005.07477 (2020)
- *Boundary amenability and measure equivalence rigidity among two-dimensional Artin groups of hyperbolic type*, with Jingyin Huang, arXiv:2004.09325 (2020)
- *Rigidity of the Torelli subgroup in  $\text{Out}(F_N)$* , with Sebastian Hensel and Richard D. Wade, arXiv:1910.10189 (2019)
- *The Tits alternative for the automorphism group of a free product*, arXiv:1408.0546 (2014)

### Accepted papers

- *Acyindrical hyperbolicity of automorphism groups of infinitely-ended groups*, with Anthony Genevois, accepted in J. Topol.
- *Big mapping class groups with hyperbolic actions: classification and applications*, with Yulan Qing and Kasra Rafi, accepted in J. Inst. Math. Jussieu
- *Boundary amenability of  $\text{Out}(F_N)$* , with Mladen Bestvina and Vincent Guirardel, accepted in Ann. Sci. Éc. Norm. Supér.
- *Boundaries of relative factor graphs and subgroups of automorphisms of free products*, with Vincent Guirardel, accepted in Geom. Topol.

### Published papers

- *On the topological dimension of the Gromov boundaries of some hyperbolic  $\text{Out}(F_N)$ -graphs*, with Mladen Bestvina and Richard D. Wade, Pacific J. Math. **308**(1)(2020), 1–40
- *Commensurations of subgroups of  $\text{Out}(F_N)$* , with Richard D. Wade, Trans. Amer. Math. Soc. **373**(4)(2020), 2699–2742
- *A compactification of outer space which is an absolute retract*, with Mladen Bestvina, Ann. Institut. Fourier (Grenoble) **69**(6)(2019), 2395–2437
- *Algebraic laminations for free products and arational trees*, with Vincent Guirardel, Algebr. Geom. Topol. **19**(5)(2019), 2283–2400
- *Spectral theorems for random walks on mapping class groups and  $\text{Out}(F_N)$* , with François Dahmani, Int. Math. Res. Not. **9**(2018), 2693–2744
- *Central limit theorems for mapping class groups and  $\text{Out}(F_N)$* , Geom. Topol. **22**(1)(2018), 105–156.
- *The boundary of the outer space of a free product*, Israel J. Math. **221**(1)(2018), 179–234.
- *The hyperbolicity of the sphere complex via surgery paths*, with Arnaud Hilion, J. reine angew. Math. **730** (2017), 135–161.

- *The horoboundary of outer space, and growth under random products of automorphisms*, Ann. Sci. Éc. Norm. Sup. (4) **49**(5)(2016), 1075–1123.
- *A short proof of Handel and Mosher’s alternative for subgroups of  $Out(F_N)$* , Groups Geom. Dyn. **10**(2)(2016), 709–721.
- *Hyperbolic graphs for free products, and the Gromov boundary of the graph of cyclic splittings*, J. Topol. **9**(2)(2016), 401–450.
- *The Poisson boundary of  $Out(F_N)$* , Duke Math. J. **165**(2)(2016), 341–369.
- *Spectral rigidity for primitive elements of  $F_N$* , J. Group Theory **19**(1)(2016), 55–123.
- *Automorphisms of graphs of cyclic splittings of  $F_N$* , with Richard D. Wade, Geom. Dedic. **178**(1)(2015), 171–187.
- *Sphere paths in outer space*, Algebr. Geom. Topol. **12**(4)(2012), 2493–2517.

### Others

- *Morphisms from higher rank lattices to  $Out(F_N)$* , with Vincent Guirardel, 8-page appendix to the paper ”Hyperbolic rigidity of higher rank lattices” by Thomas Haettel, Ann. Sci. Éc. Norm. Supér. **53**(2)(2020), 439–468.

### Selected talks

---

#### International conferences

- October 2021: ‘Topics in von Neumann Algebras and Geometric Group Theory’ (online)
- June 2021: Paris, ‘Rencontre ANR Algèbres d’Opérateurs et Dynamique des Groupes’
- October 2020: Luminy, CIRM, ‘Measured and geometric group theory, rigidity, operator algebras’
- June 2020: Oberwolfach, ‘Geometric structures in group theory’
- September 2019: Bielefeld, ‘Outer space in Bielefeld’
- June 2019: CIRM, Luminy, ‘Aspects of Non-Positive and Negative Curvature in Group Theory’
- May 2019: Banach Center, Warsaw, ‘Non-positive curvature’
- August 2018: Midway, Summer 2018 Wasatch Topology Conference
- July 2018: Warwick, ‘Graphs, surfaces, and cube complexes’
- April 2018: Warwick, ‘Geometry of outer spaces and outer automorphism groups’
- February 2018: Luminy, CIRM
- October 2016: MSRI, ‘Geometry of mapping class groups and  $Out(F_N)$ ’
- August 2016: MSRI, ‘Geometric Group Theory’, Introductory Workshop
- February 2016: Karlsruhe, Young Geometric Group Theory V
- August 2015: Park City, Summer 2015 Wasatch Topology Conference

- July 2015: Luminy, CIRM, "Impacts of geometric group theory"
- June 2015: Dubrovnik VIII - Geometric Topology, Geometric Group Theory and Dynamical Systems
- June 2015: Notre Dame, International Conference on Boundaries and Ergodic Geometry
- May 2015: Austin, Workshop on Mapping Class Groups and  $\text{Out}(F_N)$
- October 2014: Carcassonne, Final meeting of the ANR LAM
- September 2014: University of Rennes 1, Conference on "Geometric, dynamical and combinatorial aspects of infinite groups"
- July 2013: University of Aix-Marseille, Research programme "The geometry of outer space : investigated through its analogy with Teichmueller space"
- June 2013: Oberwolfach, Workshop "Geometric structures in group theory"
- November 2012: Centre de Recerca Matematica, Barcelona

### Colloquia

- 2018: Queen's University (Kingston)
- 2015: University of Oklahoma

### Seminar talks

- 2021: Geometric Group Theory in East Asia Seminar (online), UCLA (online)
- 2020: ENS Lyon, Université de Paris, Group Actions Seminar (online)
- 2019: Munich, Nantes, Rennes, Oklahoma City, Salt Lake City, Ohio State University, Toronto
- 2018: Bordeaux, Avignon, Mexico, Kingston, Toronto, Buffalo, McGill University (Montreal)
- 2017: IHÉS, Université de Lyon I, University of Toronto, École Polytechnique
- 2015: Université Paris Sud, Université Paris VI, Aix-Marseille Université, Universität Wien, Freie Universität Berlin, McGill University (Montreal), University of Illinois (Urbana-Champaign), Université de Nantes, Université Paul Sabatier (Toulouse), Université Lille 1, University of Utah (Salt Lake City), University of Oklahoma, University of British Columbia (Vancouver), Yale University (New Haven), Rice University (Houston)
- 2014: Université de Rennes 1, Université Paris Sud, Université de Caen, Université de Strasbourg, Université de Genève, Institut Fourier (Grenoble)
- 2013: Aix-Marseille Université, Universität Münster, Université de Rennes 1 (séminaire et Journées Louis Antoine)
- 2012: Aix-Marseille Université, Max Planck Institut für Mathematik (Bonn)
- 2011: Cornell University (Ithaca)

### Conferences organized

---

- April-July 2022: IHP trimester “Groups Acting on Fractals, Hyperbolicity and Self-similarity”
- April 2022: “Mapping class groups and  $\text{Out}(F_N)$ ”, IHP (Paris)
- May 2018: “Right-angled Artin groups and their automorphisms”, Orsay

## Conferences attended

---

- February 2016: Young Geometric Group Theory V, Karlsruhe
- December 2015: Winter 2015 Wasatch Topology Conference, Salt Lake City
- August 2015: Summer 2015 Wasatch Topology Conference, Park City
- July 2015: ”Impacts of geometric group theory”, CIRM, Luminy
- June 2015: Dubrovnik VIII - Geometric Topology, Geometric Group Theory and Dynamical Systems
- June 2015: International Conference on Boundaries and Ergodic Geometry, Notre Dame (USA)
- May 2015: Workshop on Mapping Class Groups and  $\text{Out}(F_N)$ , Austin
- January 2015: Young Geometric Group Theory IV, Spa (Belgium)
- October 2014: Carcassonne, Final meeting of the ANR LAM,
- June 2014: Conference on ”Geometric, dynamical and combinatorial aspects of infinite groups”, University of Rennes 1
- March 2014: Asymptotic properties of groups, IHP, Paris
- January 2014: Random walks on groups, IHP, Paris
- January 2014: 3rd Young Geometric Group Theory Meeting, CIRM, Luminy
- January 2014: Introductory school for the IHP trimester on random walks and asymptotic geometry of groups, CIRM, Luminy
- June-July 2013: Summer school and research program ”The geometry of outer space: investigated through its analogy with Teichmueller space”, University of Aix-Marseille
- June 2013: Workshop ”Geometric structures in group theory”, Oberwolfach
- February 2013: Young Geometric Group Theory II, Technion, Haifa
- November 2012: Conference on Automorphisms of free groups : Algorithms, Geometry and Dynamics, Centre de Recerca Matematica, Barcelona
- July 2012: Summer school “Geometric group theory”, Park City Mathematics Institute, Utah
- June 2012: Summer school and conference “Topology and groups”, Berlin
- January-March 2012: Program on “Geometry and analysis of surface group representations”, IHP, Paris

- January 2012: Winter school “Introductory Workshop to Geometry and Analysis of Surface Group Representations”, Autrans
- September 2011: 1072nd meeting of the AMS, Cornell University, Ithaca, Special session on Geometry of Arithmetic Groups
- June-July 2011: Program on “Geometric and measured group theory”, IHP, Paris
- April 2011: “An invitation to von Neumann algebras and ergodic theory of group actions”, CIRM, Luminy

## Teaching

---

2018 and 2019	Master course ‘Geometric group theory’, Université Paris Sud
2013-2015	Exercise sessions at the University of Rennes 1 for the courses: <ul style="list-style-type: none"> <li>• ”Linear algebra 2” (2<sup>nd</sup>-year math students)</li> <li>• ”Geometry in small dimension” (1<sup>st</sup>-year math students)</li> <li>• ”Mathematics: analysis” (1<sup>st</sup>-year biology students)</li> </ul>
June 2013	Participation in training sessions for high school students in Rennes
2009-2011	Participation in training sessions for high school students in Paris

## Languages

---

French (native), English (TOEFL 116), German