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## Education

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| 2022–2024 | Postdoctoral position at UMPA, ENS de Lyon<br>Advisor: Damien Gaboriau   |
| 2019–2022 | Ph.D thesis at Université Paris-Saclay<br>Advisors: Camille Horbez and Frédéric Paulin<br>Subject: <i>Geometry and rigidity of relative automorphism groups</i>  |
| 2018–2019 | Second year of master in mathematics Analysis, Arithmetic, Geometry<br>Université Paris-Saclay<br>Master thesis: <i>Rigidity phenomenon in the mapping class group of a surface</i><br>Advisor: Camille Horbez |
| 2016–2019 | École normale supérieure, Paris  |
| 2015–2016 | Exchange student at University of California at Los Angeles  |
| 2013–2016 | Double diploma in social sciences and mathematics<br>Sciences Po, UPMC (Université Paris 6)  |

## Papers

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### Preprints

- *Automorphismes du groupe des automorphismes d'un groupe de Coxeter universel* arXiv:2002.02223 (2020)
- *Currents relative to a malnormal subgroup system* arXiv:2112.01112 (2021)
- *North-South type dynamics of relative atoroidal automorphisms of free groups on a relative space of currents* arXiv:2203.04112 (2022)
- *Polynomial growth and subgroups of  $\text{Out}(F_n)$*  arXiv:2204.02700 (2022), under revision for Ann. H. Lebesgue

Let  $\text{Out}(F_N)$  be the outer automorphism group of a nonabelian free group of rank  $N$ . We prove that, for  $N \geq 2$  and every subgroup  $H$  of  $\text{Out}(F_N)$ , there exists a *dynamically generic element*  $\phi \in H$  which encaptures the exponential growth of  $H$ : the conjugacy class  $[g]$  of an element  $g \in F_N$  has exponential growth under iteration of some element of  $H$  if and only if  $[g]$  has exponential growth under iteration of  $\phi$ .

- *On the homology growth and the  $\ell^2$ -Betti numbers of  $\text{Out}(W_n)$* , with Damien Gaboriau and Camille Horbez, arXiv:2209.02760 (2022)

Let  $n \geq 3$  and let  $\text{Out}(W_n)$  be the outer automorphism group of a universal Coxeter group  $W_n$ , free product of  $n$  copies of  $\mathbb{Z}/2\mathbb{Z}$ . We show that, in all degrees up to  $\lfloor \frac{n}{2} \rfloor - 1$ , the sequence of the dimensions of the homology groups (with coefficients in any field) along Farber sequences of finite index subgroups of  $\text{Out}(W_n)$  grow sublinearly in the index of the subgroup. This implies for instance, using Lück's approximation, that the  $\ell^2$ -Betti numbers of  $\text{Out}(W_n)$  vanish up to degree  $\lfloor \frac{n}{2} \rfloor - 1$ .

### Accepted papers

- *Commensurations of the outer automorphism group of a universal Coxeter group* arXiv:2101.07101 (2021), accepted in Groups, Geom., Dyn.

This paper studies the rigidity properties of the abstract commensurator of the outer automorphism group of a universal Coxeter group of rank  $n$ , which is the free product  $W_n$  of  $n$  copies of  $\mathbb{Z}/2\mathbb{Z}$ . We prove that for  $n \geq 5$  the natural map  $\text{Out}(W_n) \rightarrow \text{Comm}(\text{Out}(W_n))$  is an isomorphism and that every isomorphism between finite index subgroups of  $\text{Out}(W_n)$  is given by a conjugation by an element of  $\text{Out}(W_n)$ .

### Published papers

- *The symmetries of the Outer space of a universal Coxeter group* Geom. Dedicata **216** (2022) Paper n°39

### Talks

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- Upcoming: *Paroles aux jeunes chercheuses et chercheurs en géométrie et dynamique*, Orsay, France
- Upcoming: *Séminaire topologie*, Grenoble, France
- Upcoming: *Séminaire Géométrie, groupes et dynamique*, Lyon, France
- September 2022: *Séminaire Darboux*, Montpellier, France

- September 2022: *World of Groupcraft II*, virtual conference
- May 2022: *Geometry and topology seminar*, Toulouse, France
- April 2022: *Ergodic theory seminar*, Rennes, France
- March 2022: *Groups and operator algebra seminar*, Orsay, France
- March 2022: *Algebra and geometry seminar*, Caen, France
- February 2022: *Rauzy seminar*, Marseille, France
- July 2021: *Graduate student seminar*, Rennes, France
- June 2021: *Beyond Hyperbolicity at Ohio State University*, virtual conference
- June 2021: *Geometric and Asymptotic Group Theory with Applications*, virtual conference
- June 2021: *Graduate student seminar*, Orsay, France
- May 2021: *Graduate student conference in Algebra, Geometry and Topology at Philadelphia*, virtual conference
- January 2021: *French seminar of groups and geometry*, virtual seminar
- November 2020: *Tea-Seminar at Muenster*, virtual seminar

## **Attended conferences**

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- July 2021: *Young Geometric Group Theory X*, virtual conference
- July 2021: *Artin Groups,  $CAT(0)$  geometry and related topics*, virtual conference
- December 2020: *Young researchers conference in geometry and dynamics*, virtual conference
- July 2020: *Geometric Group Theory without boundaries*, virtual conference
- February 2020: *Young Geometric Group Theory IX*, Saint-Jacut de la mer, France
- September 2019: *Outer space in Bielefeld*, Bielefeld, Germany

## Teaching

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- 2019–2022      Exercise sessions at Université Paris-Saclay for the courses:
- *Statistics* (2nd year biology students)
  - *General mathematics* (2nd year economy students)
  - *Differential equations* (2nd year chemistry students)
  - *Arithmetic* (2nd year math students)
- 2018              *Parimaths*: Exercise sessions for high school students in Paris

## Languages

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- French          Native  
English        Fluent (IELTS 7, 2015)