

Laboratoire de mathématiques Nicolas Oresme
Université de Caen Normandie Bureau S3 221
email : yassine.guerch@cnrs.fr
Webpage: <https://website-yassineguerch.apps.math.cnrs.fr/>

Education

Since 2024	CNRS Junior researcher Laboratoire de mathématiques Nicolas Oresme Université de Caen, France
2022–2024	Postdoctoral position at UMPA, ENS de Lyon Advisor: Damien Gaboriau
2019–2022	Ph.D thesis at Université Paris-Saclay Subject: <i>Geometry, dynamics and rigidity of automorphism groups of free products</i> Advisors: Camille Horbez and Frédéric Paulin
2018–2019	Second year of master in mathematics Analysis, Arithmetic, Geometry Université Paris-Saclay Master thesis: <i>Rigidity phenomenon in the mapping class group of a surface</i> 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 Sciences Po, UPMC (Université Paris 6)

Papers

Preprints

- *Centralisers and the virtually cyclic dimension of $\text{Out}(F_N)$* , with Sam Hughes and Luis Jorge Sánchez Saldaña, arXiv:2308.01590 (2023)
- *Folding median graphs*, with Anthony Genevois and Romain Tessera, arXiv:2311.09751 (2023)
- *Suspensions of relatively hyperbolic groups and the Farrell–Jones Conjecture*, with Naomi Andrew and Sam Hughes, arXiv:2311.14036 (2023)

Accepted and published papers

- *On the homology growth and the ℓ^2 -Betti numbers of $\text{Out}(W_n)$* , with Damien Gaboriau and Camille Horbez, arXiv:2209.02760 (2022), accepted in Ann. Inst. Fourier
- *Roots of outer automorphisms of free groups and centralizers of abelian subgroups of $\text{Out}(F_N)$* , arXiv:2212.07674 (2022), accepted in Michigan Math. J.
- *Homology growth of polynomially growing mapping tori*, with Naomi Andrew, Sam Hughes and Monika Kudłinska, arXiv:2305.10410 (2023), accepted in Groups Geom. Dyn.
- *Automorphismes du groupe des automorphismes d'un groupe de Coxeter universel* Algebr. Geom. Topol. **24** (2024) 251–276
- *The symmetries of the Outer space of a universal Coxeter group* Geom. Dedicata **216** (2022) Paper n°39
- *Commensurations of the outer automorphism group of a universal Coxeter group* Groups Geom. Dyn. **17** (2023) 923–983
- *Currents relative to a malnormal subgroup system* Ann. Fac. Sci. Toulouse Math. (6) **33** (2024) 493–522
- *North-South type dynamics of relative atoroidal automorphisms of free groups on a relative space of currents* Conform. Geom. Dyn. **27** (2023) 161–263
- *Polynomial growth and subgroups of $\text{Out}(F_n)$* Ann. H. Lebesgue **6** (2023) 595–625

Talks

- November 2024: *Operator algebra seminar*, Paris, France
- November 2024: *Algebra and geometry seminar*, Caen, France
- March 2024: *Rigidité en théorie des groupes : aspects géométriques et ergodiques*, Orsay, France
- February 2024: *Geometry and applications seminar*, Strasbourg, France
- February 2024: *Geometry, Algebra, Dynamics, Topology*, Dijon, France
- January 2024: *Groupe de travail “Actions!”*, Lyon, France
- November 2023: *Algebra and geometry seminar*, Caen, France
- October 2023: *Séminaire SPACE Tours*, Tours, France

- September 2023: *Long-distance seminar on Geometric Group Theory in Mexico*, virtual seminar
- March 2023: *Topology and Dynamical Systems Conference*, virtual conference
- February 2023: *Geometric Group Theory seminar*, Cambridge, United Kingdom
- February 2023: *Séminaire géométrie dynamique*, Lille, France
- January 2023 : *Groupe de travail "Actions!"*, Lyon, France
- November 2022: *Paroles aux jeunes chercheuses et chercheurs en géométrie et dynamique*, Orsay, France
- November 2022: *Séminaire topologie*, Grenoble, France
- October 2022: *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

- July 2024 : Équivalence orbitale, Besse, France
- October 2023: *Rigidity properties of free-by-cyclic groups*, Los Angeles, USA
- August 2023: *Coarse geometry and dynamics*, Lyon, France
- May 2023: *Measured Group Theory, Stochastic Processes on Groups and Borel Combinatorics*, Luminy, France
- March 2023: *Spring school in geometry and dynamics*, Lille, France
- April-July 2022: *Groups Acting on Fractals, Hyperbolicity and Self-similarity*, IHP, Paris, France
- 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

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

Languages

French	Native
English	Fluent (IELTS 7, 2015)