Gabriel Pallier

French citizen.
Born in Paris on May 3rd, 1992.

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Current position

Université de Lille — Villeneuve d'Ascq (France)
Assistant professor (maître de conférences), Laboratoire Paul Painlevé — 2023 –

Previous positions

Karlsruhe Institute of Technology — Karlsruhe (Germany)
Postdoctoral researcher, with C. Llosa Isenrich — 2022 – 2023

Sorbonne Université — Paris (France)
Teaching and Research assistant (ATER), IMJ-PRG and Inspé de l'académie de Paris — 2021 – 2022

Universitá di Pisa and université de Fribourg — Pisa (Italy) and Fribourg (Switzerland)
Postdoctoral researcher (ERC Geomeg), with E. Le Donne — 2019 – 2021

Ph.D.

Université Paris-Sud (Orsay) — 2016-2019
Title: *Sublinear asymptotic geometry: hyperbolicity, self-similarity, invariants*, advisor: P. Pansu.

Research interests

I work in geometric group theory, using tools from analysis on metric spaces and combinatorial group theory.
Keywords and phrases: Hyperbolic groups, quasiisometry, quasiisometric rigidity, Dehn functions, nilpotent and solvable Lie groups, right-angled Artin groups, subriemannian geometry, L^p-cohomology.

Publications and preprints

[1] J. García-Mejía, C. L. Isenrich, and G. Pallier, "On the Dehn functions of central products of nilpotent groups", 2023. arXiv: 2310.11144 [math.GR].

[2] C. Llosa Isenrich, G. Pallier, and R. Tessera, "Cone-equivalent nilpotent groups with different Dehn functions", *Proceedings of the London Mathematical Society*, vol. 126, no. 2, pp. 704–789, 2023. eprint: https://londmathsoc.onlinelibrary.wiley.com/doi/pdf/10.1112/plms.12498.

[3] G. Pallier and Y. Qing, "Sublinear bilipschitz equivalence and sublinearly Morse boundaries", *J. Lond. Math. Soc.* (to appear), 2023.

[4] E. Le Donne, G. Pallier, and X. Xie, "Rough similarity of left-invariant Riemannian metrics on some Lie groups", *Groups, Geom., Dyn.* (to appear), 2022.

[5] G. Pallier, "On the logarithmic coarse structures of Lie groups and hyperbolic spaces", *Geom. Dedicata*, vol. 216, no. 5, Paper No. 56, 2022, ISSN: 0046-5755.

[6] G. Pallier, "Large-scale sublinearly Lipschitz geometry of hyperbolic spaces", *J. Inst. Math. Jussieu*, vol. 19, no. 6, pp. 1831–1876, 2020, ISSN: 1474-7480.

[7] G. Pallier, "Sublinear quasiconformality and the large-scale geometry of Heintze groups", *Conform. Geom. Dyn.*, vol. 24, pp. 131–163, 2020.

Appendix

- G. Pallier, Appendix to *Geometric rigidity of horospherical products* by T. Ferragut, arXiv eprint 2211.04093, submitted.

Unpublished work containing original research

- G. Pallier, *Isoperimetrics of periodic metrics* , Master Thesis, université Paris-Sud, 2016.

RESEARCH TALKS

2024 ENS Lyon, séminaire Géométrie, Groupes et Dynamique; Université Paris-Saclay, "Rigidité en théorie des groupes : aspects géométriques et ergodiques"[**].

2023 Séminaire francophone Groupes et Géométrie; Westfälische Wilhelms – Universität Münster (Tee seminar); XIVth Heidelberg – Karlsruhe – Strasbourg Geometry Day; Fribourg MAPS: Metric Analysis, Parametrizations, Surfaces [*].

2022 Université Clermont – Auvergne, séminaire GAAO; Université de Bourgogne, séminaire GADC; Université de Nice; Université de Lille; Bern university, colloquium; University of California Santa Barbara, Topology seminar (online); Fudan university Shanghai, Topology seminar (online).

2021 ETH Zürich, Geometry seminar; Université Paris-Cité, colloquium Géométrie et Dynamique; Bowling Green State University, colloquium.

2020 University of Wisconsin -Milwaukee (online); University of Jyväskylä; Université de Fribourg, Oberseminar Geometrie.

2019 University of Bristol; University of Oxford; Université Aix-Marseille (séminaire Teich); Karlsruhe Institute of Technology.

2018 Paroles aux jeunes chercheurs : groupes et géométrie, Université Claude Bernard Lyon I [*].

[*] Plenary talks in conferences or workshops.
[**] Mini-course.

SERVICE, COMMUNITY WORK

Organizer

- **"Geometry and Dynamics" weekly seminar.**   Since 2023

  with D. Radchenko. *Laboratoire Paul Painlevé, Université de Lille*

- **Study group on the works of Kleiner, Müller and Xie.**   march-april 2023

  with F. Tripaldi. *SNS, Pisa and KIT, Karlsruhe.*

- **PhD student seminar of the math doctoral school of Université Paris-Saclay.**   2017-2018

  with L. Lehéricy and P. Roux. *Université Paris-Saclay, Orsay.*

Redactional

- **Referee, review**   Since 2021

  Referee reports written for 3 submitted articles in peer-reviewed journals; 1 declined.
  Publication databases : 10 reviews written for Mathematical Reviews.

- **Images des mathématiques (hosted by the CNRS)**   february 2021 - december 2023

  Writer of the website's monthly press review on mathematical news.

Jury member

- Examiner for the oral part of the joint entrance competition of the École normales supérieures (ENS) Paris, Lyon, Saclay and Rennes (in mathematics).   2024

OUTREACH

- Seminar "Mathematic Park", Institut Henri Poincaré   2017–2019
  Organiser. Intended to undergraduates and high-school teachers. The speakers are active reasearchers.

- MATh.en.Jeans, Académie de Créteil   2016–2018
  Advisor for math clubs in the Rosa Parks and Dulcie September middle schools.

- General audience publications   2016 –2017
  Author of 2 papers, one about the math of the game SET and another on a proof of Erdös-Renyi-Sós friendship theorem using projective geometry, in the french magazine *Quadrature*.

TEACHING EXPERIENCE

- **Université de Lille**   september 2023 -
  Teaching assistant and lecturer. *Fundamental mathematics II (1st year bachelor), Calculus (2nd year bachelor)*

- **Karlsruhe Institute of Technology**   october 2022 - july 2023
  Übungsleiter (Teaching assistant). *Advanced Mathematics III (3rd year mechanical engineering), Geometric group Theory (3rd year of bachelor and first year of master)*

- **Inspé de l'académie de Paris**   september 2021 - july 2022
  Lectures and Teaching assistant. *Mathematics and didactics of mathematics (for future primary school, middle school, and high-school teachers).*

- **Université de Fribourg**   septembre 2020 - june 2021
  Assistant - docteur (teaching assistant). *Analysis 3 (2nd year bachelor), organizer of the free seminar (3rd year bachelor).*

- **IUT d'Orsay, université Paris-Sud**   september 2016 - june 2019
  Teaching assistant. *1st and 2nd year: Analysis, linear algebra, mathematical tools for physics, coding with Python.*

- **INSA de Lyon**   july 2014 - august 2014
  Teaching assistant for the summer school preparing international students for the 1st year. *Mathematics.*

TOOLS

- **Typesetting**, LaTeX, PGF/TIKZ
- **Scientific computing** Matlab
- **Formal calculus** Sage, Maple, GAP
- **General** Python

LANGUAGES

- **French** Native speaker

- **English** professional practice

- **German, Spanish** beginner

Scholarships and grants

- Grant "PEPS JCJC" from the Institut National des Sciences Mathématiques et leurs Interactions, 3500 €   2024
- Grant "Connecting Young Scientists" from the Karlsruhe House for Young Scientists, 5 000 €   2023
- Scholarship from the Fondation mathématiques Jacques Hadamard for master studies, 12 000 €   2015–2016