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 (MCF), 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.

Sublinear asymptotic geometry: hyperbolicity, self-similarity, invariants.   Université Paris-Sud, Orsay
Advisor: Prof. Pierre Pansu   2019

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, 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", 2023.
      arXiv: 2211.01023 [math.GR].

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

Unsubmitted work containing original research

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

Research talks

2024 *upcoming*: 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 (en ligne); Fudan university Shanghai, Topology seminar (online).

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

2020 University of Wisconsin -Milwaukee (en ligne); 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.

Teaching

- **Université de Lille**   september 2023 -
  Teaching assistant. *Mathématiques (L1 MPCSI), Analyse (L2 MIASHS)*
- **Karlsruhe Institute of Technology**   october 2022 - july 2023
  Übungsleiter (Teaching assistant). *Advanced Mathematics III (3e année d'ingénierie mécanique), Geometric group Theory (last 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 teachers and high-school teachers).*
- **Université de Fribourg**   septembre 2020 - june 2021
  Assistant - docteur. *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. *Analysis, linear algebra, mathematical tools for physics, coding with Python.*

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

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 et Xie.**   march-april 2023

  with F. Tripaldi. *SNS, Pisa et 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.*

Redactional

- **Referee, review**   Since 2021

  Revues : *Anal. Geom. Metr. Spaces, Mem. Amer. Math. Soc.*
  Publication databases : *Mathematical Reviews.*

- **Images des mathématiques**   february 2021 - june 2024

  Writer in the team publishing the website's monthly press review on mathematical news. The website is hosted by the CNRS.

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 Sepember middle schools.
- General audience publications   2016 –2017
  2 papers on the game SET and on a proof of Erdös-Renyi-Sos friendship theorem using projective geometry, in the french magazine *Quadrature.*

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 "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