

Malo Jézéquel

Employment

- January 2024 - **Chargé de recherche**, *CNRS*, based at LMBA, Brest.
Now
- September 2021 - **C.L.E. Moore Instructor**, *Massachusetts Institute of Technology*, Cambridge, Massachusetts.
December 2023

Studies

- September 2018 - **PhD under the supervision of Viviane Baladi**,
August 2021 *Laboratoire de Probabilités, Statistiques et Modélisation*, Paris.
- Fall 2019 **Program Associate in the MSRI Program “Microlocal Analysis”**, *Mathematical Sciences Research Institute*, Berkeley.
- 2017–2018 **Internship under the supervision of Viviane Baladi**, *Institut Mathématique de Jussieu*, Paris.
- 2016–2017, **Master’s thesis under the supervision of Viviane Baladi**.
second semester
- 2016–2017 **Master 2 “Analyse, Arithmétique, Géométrie”**, *Université Paris Sud*, Orsay.
- 2014–2018 **Studies in Mathematics at “École Normale Supérieure”**, Paris.
- 2014 **Admitted in ENS Ulm**.
- 2012–2014 **Classes préparatoires scientifiques**, *Lycée de Kérichen*, Brest.
- 2012 **Baccalauréat**, *Lycée de Kérichen*, Brest.

Papers

Distribution of Ruelle resonances for real-analytic Anosov diffeomorphisms, 51 pages.

<https://arxiv.org/abs/2212.09881>

Upper bound on the number of resonances for even asymptotically hyperbolic manifolds with real-analytic ends, <https://arxiv.org/abs/2209.06064>

Scattering rigidity for analytic metrics (with Yannick Guedes Bonthouneau and Colin Guillarmou), *Cambridge Journal of Mathematics*, Vol. 12, No. 1 (2024), pp.165–222.

Rigorous justification for the space-split sensitivity algorithm to compute linear response in Anosov systems (with Nisha Chandramoorthy), 2022, *Nonlinearity* **35** 4357.

Semiclassical measures for higher dimensional cat maps (with Semyon Dyatlov), *Annales Henri Poincaré*, *online first*.

FBI Transform in Gevrey Classes and Anosov Flows (with Yannick Guedes Bonthouneau), <https://arxiv.org/abs/2001.03610>

Transfer operator for ultradifferentiable expanding maps of the circle, *Ergodic Theory and Dynamical Systems*, 41, No. 7, 2049–2068 (2021).

Global trace formula for ultra-differentiable Anosov flows, *Communications in Mathematical Physics*, 385, No. 3, 1771–1834 (2021).

Local and global trace formulae for smooth hyperbolic diffeomorphisms, *J. Spectr. Theory*, 10 (2020), 185–249.

Parameter regularity of dynamical determinants of expanding maps of the circle and an application to linear response, *Discrete and Continuous Dynamical Systems - Series A*, 39(2):927–958, 2019.

Talks

- July 2023 **Minicourse on resonances in hyperbolic dynamics during the summer school “Microlocal and probabilistic methods in geometry and dynamics”**, *IMJ-PRG*, Paris.
- June 2023 **Seminar “Géométrie dynamique”**, *Laboratoire Paul Painlevé*, Lille.
- April 2023 **Geometry and topology seminar**, *Caltech*.
- February 2023 **Analysis seminar**, *Yale University*.
- January 2023 **Geometry seminar**, *Université de Nantes*.
- November 2022 **Workshop « Bergman kernels in microlocal analysis and mathematical physics »**, *Centre International de Rencontres Mathématiques*, Marseille.

- November 2022 **Analysis seminar**, *Loughborough university*.
- June 2022 **Workshop “Hyperbolic dynamical systems, geometry and spectral theory”**, *Peyresq*.
- June 2022 **Seminar on microlocal analysis and applications**, *Tsinghua and Fudan universities (online seminar)*.
- April 2022 **Analysis and PDE Seminar**, *UC Berkeley*.
- February 2022 **Spectral Geometry in the Clouds**, *online*.
- December 2021 **Ergodic Theory and Dynamical Systems Seminar**, *Warwick University*.
- October 2021 **Mathematics Colloquium**, *Dalhousie University*.
- September 2021 **PDE/Analysis Seminar**, *MIT, Cambridge, Massachusetts*.
- March 2021 **Exercise session from Semyon Dyatlov’s mini-course at “Spring School on Transfer Operators (Classical and Modern Techniques)”**, *Bernoulli center, Lausanne*.
- October 2020 **Geometry seminar**, *Université de Nantes*.
- June 2020 **Geometric analysis seminar (joint talk with Yannick Guedes Bonthouneau)**, *online*.
- April 2020 **PhD students working group (LPSM)**, *online*.
- February 2020 **“Raconte-moi” seminar**, *École Normale Supérieure, Paris*.
- February 2020 **Geometry, topology, dynamics seminar**, *Université Paris-Saclay, Orsay*.
- January 2020 **Mini-course on Sobolev spaces for the members of the ANR project CODYS**.
- January 2019 **“Rencontre thésards/profs en dynamique de l’IMJ-PRG et du LPSM”**, *Paris*.
- November 2019 **Conference “Paroles aux Jeunes Chercheurs en Géométrie et Dynamique”**, *Institut Élie Cartan, Nancy*.
- November 2019 **Ergodic theory seminar**, *Institut de Recherche Mathématique de Rennes, Rennes*.
- October 2019 **HADES (Harmonic Analysis and Differential Equation Seminar)**, *University of California Berkeley, Berkeley*.
- September 2019 **Microlocal Analysis graduate student seminar**, *Mathematical Sciences Research Institute, Berkeley*.

- June 2019 **Dynamics, probabilities and statistics seminar (LMBA)**, *Université de Bretagne Occidentale*, Brest.
- May 2019 **Dynamics and probabilities seminar (LAMFA)**, *Université de Picardie Jules Verne*, Amiens.
- May 2019 **Research School “Dynamics Beyond Uniform Hyperbolicity”**, *Centre International de Rencontres Mathématiques*, Marseille.
- November 2018 **Ergodic theory seminar (LPSM)**, *Sorbonne-Université*, Paris.
- September 2018 **Dynamics Days Europe 2018**, *Loughborough University*.
- June 2018 **Workshop “Thermodynamic Formalism in Dynamical Systems”**, *International Centre for Mathematical Science*, Edinburgh.
- June 2018 **Workshop on analytical aspect of flows and inverse problems in geometry organized by Colin Guillarmou**, *Peyresq*.
- February 2018 **Workshop on analytical aspect of flows and inverse problems in geometry organized by Colin Guillarmou**, *Université d’Orsay*.
- December 2017 **Workshop “Fractals and Dimensions”**, *Institut Mittag-Leffler*.

Other conferences attended

- May/June 2023 **Analytic Techniques in Dynamics and Geometry**, *Les Diablerets*, Suisse.
- June 2022 **Workshop “Ruelle resonances in parabolic dynamics”**, *Zurich University and Institute for Theoretical Studies*.
- June 2021 **Conference “Écoles d’été finistérienne en systèmes dynamiques”**, *Université de Brest*.
- October 2019 **Workshop: “Recent Development in Microlocal Analysis”**, *Mathematical Sciences Research Institute*, Berkeley.
- September 2019 **Introductory Workshop: Microlocal Analysis**, *Mathematical Sciences Research Institute*, Berkeley.
- July 2019 **Research School “Thermodynamic Formalism: Modern Techniques in smooth Ergodic Theory”**, *Centre International de Rencontres Mathématiques*, Marseille.

- June 2019 **Oberwolfach Seminar “Anisotropic Spaces and their Applications to Hyperbolic and Parabolic Systems”**, *Mathematisches Forschungsinstitut Oberwolfach*, Germany.
- August 2018 **“Dynamical Systems and Related Topics”**, satellite conference of the ICM, *Salvador de Bahia*.
- August 2018 **Internatinal Congress of Mathematicians**, *Rio de Janeiro*.
- July 2018 **Summer School “Dynamics (Introductory and advanced)”**, *International Centre for Theoretical Physics*, Trieste.
- March 2018 **Workshop “New Developments in Open Dynamical Systems and their Applications”**, *Banff International Research Station*.
- September 2017 **Conference “Parole aux jeunes chercheurs” of GDR Plato**, *Université de Rennes*.
- July 2017 **Summer school “Analytical Aspects of Hyperbolic Flows”**, *Université de Nantes*.

Teaching

- Fall 2023 **Course 18.101 (analysis and manifolds)**, *MIT*, Cambridge, Massachusetts.
- Spring 2023 **Course 18.125 (measure theory and analysis)**, *MIT*, Cambridge, Massachusetts.
- Fall 2022 **Course 18.100A (real analysis)**, *MIT*, Cambridge, Massachusetts.
- Spring 2022 **Course administrator for 18.03 (differential equations)**, *MIT*, Cambridge, Massachusetts.
- Fall 2021 **Teaching assistant for 18.01A/18.02A**, *MIT*, Cambridge, Massachusetts.
- 2018–2021 **Teaching assistant (complex analysis)**, *École Normale Supérieure*, Paris.
- 2017–2018 **Oral examiner in “classe préparatoire MP*”**, *Lycée Louis Le Grand*, Paris.
- 2015–2016 **Oral examiner in “classe préparatoire PC*”**, *Lycée Fénelon*, Paris.

Languages

French Native

English Spoken, written.

Others

- November **Organization with Viviane Baladi and Thibault**
2020–January **Lefeuvre of an online working group on exponen-**
2021 **tial mixing in Anosov flows.**
- 2014–2018 **Active member of “ciné-club de l’ENS”.**
- 2017 **First place in “concours SMF junior” with Jean**
Kieffer and Thomas Massoni.
- 2012 **Driver’s License.**