Alix Deleporte

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Research experience

2020–now **Maître de conférences**, *Laboratoire de Mathématiques d'Orsay*, Université Paris-Saclay.

2020 **Postdoctoral researcher**, *Institut für Mathematik*, University of Zurich.

2019 **Postdoctoral researcher**, *MSRI*, Berkeley.

2016–2019 **Graduate student researcher**, *IRMA*, University of Strasbourg.
Advisor: Nalini Anantharaman

2015–2016 **Research internship**, *IRMA*, University of Strasbourg.
Advisor: Nalini Anantharaman

2015 **MSc Internship**, *IRMA*, University of Strasbourg.
Advisor: Nalini Anantharaman

2013 **BSc Internship**, *ENS and CEA*.
Advisors: Benjamin Texier and Thierry Foglizzo

Publications

2022 WKB Eigenmode construction for analytic Toeplitz operators, Pure and Applied Analysis (accepted)

2022 A direct approach to the analytic Bergman projection (with Michael Hitrik and Johannes Sjöstrand), Ann. Fac. Sci. Toulouse (accepted)

2021 Toeplitz operators with analytic symbols, Journal of Geometric Analysis 31(4), 3915–3967

2021 Uniform spectral asymptotics for semiclassical wells on phase space loops (with San Vũ Ngọc), Indag. Math. 32(1), 3–32 (2021)

2020 Fractional exponential decay in the forbidden region for Toeplitz operators, Documenta Mathematica 25, 1315–1351

2020 Low-energy spectrum of Toeplitz operators with a miniwell, Comm. Math. Phys, in press

2019 Low-energy spectrum of Toeplitz operators: the case of wells, J. Spectral Theory 9, 79–125

Preprints

2021 Universality for free fermions and the local Weyl law for semiclassical Schrödinger operators (with Gaultier Lambert), arXiv:2109.02121

2018 The Bergman kernel in constant curvature, arXiv:1812.06648

2018 Quantum selection for spin systems, arXiv:1808.00718

Grants and scholarships

2021 **CNRS PEPS young researcher grant**, *Université Paris–Saclay*.

2020 **Postdoctoral grant "Forschungskredit"**, *University of Zurich*.

2019 **Postdoctoral Fellowship**, *MSRI*, program "Microlocal analysis and applications".

2018 **Blaise Pascal grant**, *organisation of a highschool mathematical tournament*.

2016–2019 **PhD grant**, *École Normale Supérieure*.

2012–2016 **Full scholarship at École Normale Supérieure**.

Interns

2021 **Angélique Campaniello**, *3rd year student*.
Tensor compression and applications to numerical nuclear physics (won the Mirzakhani prize)

Talks at international conferences

11/2022 **Bergman kernels in microlocal analysis and mathematical phsyics**, *CIRM*, Marseille.
06/2022 **Workshop on Complex Analysis and Geometry**, Essen (Germany).
06/2022 **Laplacians on random hyperbolic surfaces and on random graphs**, Northwestern (United States).
07/2021 **Mathematical Congress of the Americas**, Remote.
02/2020 **Conference of the GDR Dynqua**, Strasbourg.
03/2019 **Crosscurrents in number theory, analysis and geometry**, Paris).
08/2018 **Franco-Romanian Conference in Applied Mathematics**, Bordeaux (France).
09/2017 **ASPECT17: Asymptotic Analysis and Spectral Theory**, Trier (Germany).
06/2017 **Spectral Geomerty, Graphs, Semiclassics and Dynamics**, Peyresq.
12/2016 **New trends in semiclassical analysis**, Chalès.
05/2016 **Quantum mechanics meet symplectic topology**, Tel Aviv (Israel).

Seminars, summer schools

05/2022 **Colloquium**, Cergy-Pontoise.
01/2022 **Analysis seminar**, Strasbourg.
06/2021 **Semiclassical analysis and representations seminar**, Köln (Germany).
05/2021 **Analysis seminar**, Bonn (Germany).
02/2021 **Symplectix Seminar**, Remote.
12/2020 **Harmonic analysis seminar**, Orsay.
09/2020 **Spectral Geometry in the clounds**, Remote.
09/2020 **Applied Analysis seminar**, Marseille.
03/2020 **Seminar on Numerical Analysis and PDEs**, Orsay.
02/2020 **Analysis seminar**, Nantes.
01/2020 **Mathematical Physics seminar**, *ICJ*, Lyon.
01/2020 **Seminar on geometries and topology**, *IMJ-PRG, Sorbonne Université*, Paris.
01/2020 **Mathematical Physics seminar**, *Institut Fourier*, Grenoble.
01/2020 **Seminar on mathematical physics and PDEs**, *Université Paris 13*, Villetaneuse.
09/2019 **MSRI Seminar**, Berkeley (US).
09/2019 **HADES Seminar**, Berkeley (US).
07/2019 **Analysis Seminar**, Nantes.
11/2018 **Mathematical Physics seminar**, Tübingen (Germany).
10/2018 **Mathematical Physics seminar**, *Institut Fourier*, Grenoble.
09/2018 **Mathematical Physics seminar**, Universität Zürich (Switzerland).
05/2018 **Working group on mathematical physics**, *Université Paris-Saclay*, Orsay.
10/2017 **PhD days Henri Lebesgue**, Rennes.
10/2017 **Analysis seminar**, Rennes.
03/2017 **Resonances: Geometric Scattering and Dynamics**, CIRM, Marseille.
10/2016 **Mathematical Physics seminar**, Nantes.
09/2016 **Working group on mathematical physics**, *Institut Fourier*, Grenoble.

07/2015 **Quantum ergodicity and harmonic analysis**, Marburg (Germany).

Education

2016–2019 **PhD**, *IRMA*, University of Strasbourg.
The low-energy spectrum of Toeplitz operators

2012–2016 **DENS**, *École Normale Supérieure (ENS)*, Paris.
Major in math, minor in physics

2013–2015 **MSc**, *ENS and Paris-Sud University*.
Partial Differential Equations and Scientific Computing, A+

2012–2013 **Double BSc**, *ENS and Paris-Sud University*.
Double major in math and physics, A+

2010–2012 **MPSI - MP***, *Lycée Louis-le-Grand*, Paris.

Teaching experience

2020–now **Maître de Conférences**, *Laboratoire de mathématiques d'Orsay, Université Paris-Saclay*.
- Dynamical systems in mathematical physics (1st year)
- Lebesgue integration (3rd year)
- Preparation for the "agrégation" national teaching exam (5th year)

2020 **Teaching Assistant**, *Institut für Mathematik, Universität Zürich (Switzerland)*.
Probabilities 1

2015–2019 **Teaching Assistant**, *UFR Math-Info, Université de Strasbourg*.
- Analysis 101
- Analysis 202 (Improper integrals, series and sequences of functions, Fourier series)
- Mathematical Circle: mathematical activities for high school students

2019 **Teaching Assistant**, *CIRM*, SMF School "États de la recherche", from classical to quantum.

2013–2016 **Teaching Assistant**, *"Colleur": weekly oral exercise sessions for college students*.
Lycées Louis-le-Grand (Paris), Condorcet (Paris), Kléber (Strasbourg)

2014 **Teacher**, *Animath*.
Preparation for mathematical olympiads

Teaching publications

2016 **Les clés pour l'écrit**, *Ed. Calvage & Mounet*, ISBN 978-2-916352-45-9.
with Bernard Randé and Quentin Guignard
Commented solutions of the 2015 national competitive entrance exams for engineering schools

Service

2020–now **Member of the gender equality board**, *Orsay*.

2019–now **Deputy member of the executive board of Institut Henri Poincaré**, *Paris*.

2017–2018 **Working group**, *Strasbourg*.
Organization of a weekly working group on uncertainty principles and unique continuation
Some lecture notes are available at deleporte.net/dotclear/index.php?pages/Research

2018 **RJM**, *Strasbourg*.
Regional conference and research workshop for female high school students

2016–2018 **TFJM²**, *Strasbourg*.
Regional competition for high school students, taking the form of research workshops