

Zoïs Moitier

Postdoctoral researcher

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Professional Experiences

2019 – **Postdoctoral researcher**, in *University of California Merced (USA)*, under the supervision of Camille Carvalho.

Education

- 2016 – 2019 **PhD thesis in Mathematics**, at *University of Rennes 1 (IRMAR, numerical analysis team)*, under the supervision of Stéphane Balac and Monique Dauge, “*Mathematical and numerical study of resonances in optical micro-cavities*”, [theses.fr].
- 2015 – 2016 **Master’s Degree (Research)**, *University of Rennes 1*, Specialization: Partial Differential Equations and Numerical Analysis, *Summa cum laude*.
- 2014 – 2015 **Agrégation of Mathematics**, Scientific Computing option, Successful candidate.
Master’s Degree (Teaching), at *ENS Rennes and University of Rennes 1*, Specialization: Mathematics and Teaching, *Summa cum laude*.
- 2013 – 2014 **National examination for the admission in third year at ENS Rennes**, in mathematics, Successful candidate.
- 2012 – 2013 **Bachelor’s Degree**, at *ENS of Lyon and University of Lyon 1*, in mathematics.
- 2009 – 2012 **Preparatory Classes**, in *Pierre Corneille high school, Rouen*, two-year undergraduate intensive course in mathematics and physics, computer science option.

Publications

Pre-publications

- 2020 **Asymptotics for 2D whispering gallery modes in optical micro-cavities with varying index**, with Stéphane Balac and Monique Dauge. [in preparation]
- 2020 **Asymptotics for metamaterial cavities and their effect on scattering**, with Camille Carvalho. [in preparation]
Asymptotics for 2D whispering gallery modes in optical micro-disks with radially varying index, with Stéphane Balac and Monique Dauge. [[arXiv:2003.14315](https://arxiv.org/abs/2003.14315)]
- 2019 **Mathematical analysis of whispering gallery modes in graded index optical micro-disk resonators**, with Stéphane Balac, Monique Dauge, Yannick Dumeige, and Patrice Féron. [[HAL-02157635](https://hal.archives-ouvertes.fr/hal-02157635)]

Proceedings

- 2019 **Asymptotic expansions of Whispering Gallery Modes in graded index optical micro-cavities**, with Stéphane Balac and Monique Dauge, WAVES, Vienna (Austria). [[Link](#)]

Research Conferences

As an invited speaker

- 2021 June Semiclassical analysis meets Numerical Analysis (SCA meets NA), Bath (United Kingdom).
- 2020 June Talk at the workshop Numerical Waves in Nice (France). [postpone]
- 2018 Dec. Talk at the PhD seminar of Cergy (France).
- Nov. Talk at the numerical analysis seminar, Bath (United Kingdom).
- Aug. Talk at 14th Franco-Romanian conference on applied mathematics in the mini-symposium *Mathematical Physics and related subjects*, Bordeaux (France).
- Mar. Talk at the ICCEM conference (IEEE International Conference on Computational Electromagnetic) in the mini-symposium *Mathematical Aspects of Computational Electromagnetic*, Chengdu (China). [Extended Abstract, [HAL-01715438](#)]
- Mar. Talk at PhD seminar of Nantes (France).
- 2017 Oct. Poster at 6th EDP-Normandie conference, Caen (France).
- As a speaker or contributor
- 2021 Mar. SIAM Conference on Computational Science and Engineering (CSE21), Fort Worth (USA).
- 2019 Nov. Talk at the Waves Seminar, UC Merced (USA).
- Aug. Talk at WAVES, 14th International Conference on Mathematical and Numerical Aspects of Wave Propagation, Vienna (Austria).
- Mar. Poster at the young researchers days in PDE, Rennes (France).
- 2018 Jun. Talk at the 2nd analysis PhD day of IRMAR, Rennes (France).
- May Talk at the 44th CANUM conference, Cap d'Agde (France).
- 2017 Nov. Talk at the analysis PhD seminar of Rennes (France).
- Oct. Talk at the 5th Mathematics and Optics Days, Rennes (France).
- Jun. Poster at the 8th SMAI conference, La Tremblade (France).
- Mar. Talk at analysis PhD seminar of Rennes (France).
- As a participant
- 2018 Oct. Lebesgue PhD meeting of the Henri Lebesgue Center, Brest (France).
- Apr. Spring school, *Fundamentals and practice of finite elements*, Thematic Semester "Scientific Computing" of the Henri Lebesgue Center, Roscoff (France).
- 2017 Oct. Lebesgue PhD meeting of the Henri Lebesgue Center, Rennes (France).
- May Hyperbolic Equation and Mathematic Physic, Bordeaux (France).
- May WAVES, 13th International Conference on Mathematical and Numerical Aspects of Wave Propagation, Minneapolis (USA).
- Feb. Numeric and mathematical analysis for singularities, Rennes (France).
- 2016 Nov. Waves, boundaries and oscillations in numerical schemes, Rennes (France).
- Oct. Workshop C++: basics of the 11 and 14, Rennes (France).

Responsibilities

- 2021 Co-organizer of the minisymposium *Numerical methods for plasmonic related phenomena* at SIAM Conference on Computational Science and Engineering (CSE21), Fort Worth (USA).
- 2018 – 2019 Co-organizer of the analysis PhD seminar ([Landau](#)) of Rennes (France).
- Co-organizer of the [Lebesgue PhD meeting](#), Brest (France).
- Co-organizer of the PhD student analysis day, Rennes(France).

Teaching

- 2018 – 2019 Mathematical Fundamentals, flipped classroom, 30h (Computer Science and Electronics Bachelor).

- Numerical methods in analysis, 24h (Mathematics for Teaching Bachelor).
Tutoring study group on a mathematical article (Mathematics Bachelor).
- 2017 – 2018 Mathematical Fundamentals, flipped classroom, 30h (Computer Science and Electronics Bachelor).
Mathematic Tools 4, 20h (Physics Bachelor).
Mathematical Tutoring, 6h (Computer Science and Electronics Bachelor).
Lab work on eigenvalue computation ([TP2](#), 4h) during the spring school, *Fundamentals and practice of finite elements*, of the Henri Lebesgue Center, Roscoff (France).
- 2016 – 2017 Mathematic Tools 1, 26h (Physics Bachelor).
Differential Equations 1, 24h (Mathematics Bachelor).
Lab work, Differential Equations 1, 12h (Mathematics Bachelor).

Scientific dissemination

- 2018 Oct. Facilitator in mathematics during “Fête de la Science”, Rennes (France).
Apr. Board for the French tournament for young mathematicians, Rennes (France).
Jan. Talk for the “5 minutes Lebesgue”. [[Video](#)]
- 2017 Mar. Facilitator during “Forum des Mathématiques Vivantes”, Rennes (France).

Other skills

Programming languages

- Familiar with C and C++
- Julia
- Python

Languages spoken

- French (native language)
- English, TOEIC 855/990 in 2015

Software

- Maple, Matlab, Octave, and Scilab
- XLiFE++, FEM library in C++. [[Webpage](#)]
- Git and \LaTeX

Miscellaneous

- Driving License