Jules Berry

PhD student in Applied Mathematics

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Education

October 2022 – Present **PhD student in Applied Mathematics**, IRMAR – University of Rennes – INSA Rennes, France
Supervised by : Olivier Ley (IRMAR – INSA Rennes) - Francisco Silva (XLIM – University of Limoges).

2021–2022 **Master 2 in Fundamental Mathematics**, *Analysis & Numerics Track*, University of Rennes, France

2020–2022 **Master's degree in Fundamental Mathematics**, University of Rennes, France, with Highest Honours

2017–2020 **Bachelor's degree in mathematics** , University of Lyon, France, with Honours

2015–2017 **First Cycle**, INSA Lyon, Lyon, France

Internships

March-June 2022 **Research internship**, IRMAR – INSA Rennes, Rennes, France
Subject : Mean Field Games on Networks.
Supervised by : Olivier Ley (IRMAR – INSA Rennes) - Francisco Silva (XLIM – University of Limoges).

June-July 2021 **Research internship**, INRIA Rennes, Rennes, France, SIMSMART team
Subject : Generalization of screening methods to quadratic programming problems.
Supervised by : Cédric Herzet (INRIA Rennes).

(Pre-)Publications

[4] Berry, J., Ley, O., & Silva, F. J. (2025). A nonsmooth extension of the Brezzi-Rappaz-Raviart approximation theorem via metric regularity techniques and applications to nonlinear PDEs. Preprint hal-05136613.

[3] Berry, J., & Colantoni, F. (2024). Sticky diffusions on star graphs: characterization and Itô formula. Preprint hal-04772414.

[2] Berry, J., & Camilli, F. (2025). Stationary Mean Field Games on networks with sticky transition conditions. *ESAIM: Control, Optimisation and Calculus of Variations*.

[1] Berry, J., Ley, O., & Silva, F. J. (2025). Approximation and perturbations of stable solutions to a stationary mean field game system. *Journal de Mathématiques Pures et Appliquées*.

Talks

Invited talks

March 205 **Durham Symposium on Mean Field Games**, *Approximation of stable solutions to second order mean field game systems*, Durham, United Kingdom

October 2024 **ANR COSS workshop**, *Sticky diffusion processes on networks and corresponding Mean Field Games*, Rennes, France

February 2024 **Rennes-Tours workshop**, *Approximation of stable solutions to a stationary mean field game system*, Rennes, France

Contributed Talks

June 2024 **Summer School on Machine Learning and Optimal Control – Poster session**, *Approximation of non-differentiable nonlinear problems*, Gaeta, Italy

March 2024 **SMAI MODE conference – Poster session**, *Approximation of stable solutions to a stationary mean field game system*, Lyon, France

January 2024 **3rd International Conference on Variational Analysis and Optimization – In Honor of Boris Mordukhovich**, *A theorem of Brezzi, Rappaz, and Raviart from the point of view of variational analysis*, Santiago, Chile

January 2024 **Conference on Numerical methods for optimal transport problems, mean field games, and multi-agent dynamics**, *Approximation of stable solutions to a stationary MFG system*, Valparaiso, Chile

Talks in seminars

December 2024 **Séminaire MOD**, *Sticky diffusion processes on networks and corresponding Mean Field Games*, Université de Limoges, Limoges, France

April 2024 **Seminario di Modellistica Differenziale Numerica**, *Approximation of stable solutions to second order mean field game systems*, La Sapienza Università di Roma, Rome, Italy

Teaching

2022-2025 **Analyse 3**, INSA Rennes, Exercise Sessions (48h/year), Bachelor level (L2)
Topics : improper integrals, numerical series, power series, Fourier series, differential calculus.

2022-2025 **Outils d'analyse pour l'ingénieur**, INSA Rennes, Exercise Sessions (10h/year), Bachelor level (L3)
Topics : Lebesgue integrals, Fourier transform, complex analysis.

Student supervision

Nov.-Dec. 2024 **Master student's seminar**, University of Rennes
Student : Angelina Jammart, co-supervised with Othmane Jerhaoui (IRMAR – INSA Rennes)
Topic : Introduction to viscosity solutions to Hamilton-Jacobi equations.

Grants

2025 **SMAI BOUM Grant**, *Funding of one week of collaborative research at CIRM.*
Project: Comparison of some macroscopic models for crowd motion.
In collaboration with: Théo Girard (Univ. Tours) and Florian Peru (Univ. Franche-Comté).

Awards

2024 **Poster Prize : First ex-aequo**, *SMAI MODE conference*, Lyon

Visits

March-May 2024 **Università di Roma la Sapienza**, *Invited by Fabio Camilli*, 3 months
2022-2025 **University of Limoges**, *Invited by Francisco Silva*, 6 one week stays

Miscellaneous

2024 - Present **Referee for**, *J. Math. Anal. Appl. (1), NoDEA (1)*

Languages

French Mother Tongue
English Proficient

Computer skills

Latex, Python, FreeFEM, Linux.