Lucas COEURET

Third year PhD student
Institut de Mathématiques de Toulouse
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Education

2021- Present PHD student at Institut de Mathématiques de Toulouse
 Advisors: Jean-François Coulombel and Grégory Faye
Title: Stability of discrete shock profiles for systems of conservation laws

2017-2021 Élève normalien at ENS Paris-Saclay, Cachan

- **2020-2021** M2 Mathématiques de la Modélisation at Sorbonne Université with highest honors
- **2020** Admitted 29th at the competitive exam of the Agrégation of Mathematics (option scientific calculus)
- **2019-2020** M2FESup in Mathematics option B, ENS Paris-Saclay, preparation for the Agrégation of Mathematics with highest honors
- **2018-2019** M1 Hadamard, ENS Paris-Saclay (with courses at Université de Paris-Sud and École Polytechnique) with high honors
- **2017-2018** L3 in Mathematics from ENS Paris-Saclay in collaboration with Université Paris-Diderot with high honors
- **2017** Admitted to ENS Paris-Saclay (Competitive exam)

2015-2017 MPSI and MP* at Lycée Louis-le-Grand, Paris

2013-2014 Scientific Baccalauréat (option Abibac) with highest honors at Lycée Gustave Flaubert, Rouen

Publications

Preprints / Articles

- **Linear orbital stability of discrete shock profiles for systems of conservation laws,** *L. Coeuret* (2023) To be submitted
  https://arxiv.org/abs/2311.02507   https://hal.science/hal-04270648
- **Tamed stability of finite difference schemes for the transport equation on the half-line,** *L. Coeuret* (2023) Accepted for publication in *Mathematics of Computation*
  https://doi.org/10.1090/mcom/3901   https://arxiv.org/abs/2304.02612   https://hal.science/hal-04059973
- **Local limit theorem for complex valued sequences,** *L. Coeuret* (2022) Submitted
  https://arxiv.org/abs/2201.01514   https://hal.science/hal-03463375

Proceedings

- **Large time behavior of finite difference schemes for the transport equation,** *L. Coeuret* (2023) Accepted for publication in Proceedings for HYP2022
  https://hal.science/hal-04191971v1

Seminars, Conferences and Scientific Schools

Séminaire EMA 23 November 2023, Calais (France)

Séminaire d'Analyse Numérique de l'IRMAR 16 November 2023, Rennes (France)

Congrès des Jeunes Chercheurs en Mathématiques et Applications 2023 25-27 September 2023, Gif-sur-Yvette (France)
Attendance and presentation of a 20-minute talk

Numhyp23 : Numerical Methods for Hyperbolic Problems 26-30 June 2023, Bordeaux (France)
Attendance and presentation of a 20-minute talk

Workshop on spatial dynamics and related approaches 5-7 September 2022, Stuttgart (Germany)
Attendance and participation in the poster session

XVIII International Conference on Hyperbolic Problems: Theory, Numerics, and Applications 20-24 June 2022, Málaga (Spain)
Attendance at the conference and presentation of a 20-minute talk

Teaching

Université Toulouse III - Paul Sabatier

2023-2024
- Functions and calculus 1, L1, TD, first semester, 28H
- Introduction to real analysis, L1, TD/TP, second semester, 32H

2022-2023
- Functions and calculus 1, L1, TD, first semester, 28H
- Linear Algebra 1, L1, TP, first semester, 4H
- Introduction to real analysis, L1, TD/TP, second semester, 32H
- Linear Algebra 1, L1, TP, second semester, 4H

2021-2022
- Numerical methods, L2, TD/TP, first semester, 24H
- Analysis, L1, Demi-cours/TD/TP, second semester, 41H

Internships

- **2021 - April / July** Scientific traineeship at Institut de Mathématiques de Toulouse, Université Paul Sabatier under the guidance of Jean-François COULOMBEL and Grégory FAYE (4 Months)
- **2019 - April / July** Scientific traineeship at Institut de Mathématiques de Toulouse, Université Paul Sabatier: Laurent Operators and Stability of Numerical Schemes, under the guidance of Jean-François COULOMBEL (4 Months)
- **2018** Scientific traineeship at CMLA, ENS Paris-Saclay: Theoretical and numerical study of an inequality in fluid mechanics with Yasinne EL-KAOUNI, under the guidance of Laure QUIVY (3 Months)
- **2015 - July / August** Linguistic traineeship at Humboldt Universität, Berlin

Organizing responsabilities

- **09/2023 - Present** Co-organizer of the PDE doctoral seminar at the Institut de Mathématiques de Toulouse

Languages and Various Information

- German (Abitur with a note of 1.8, Level C1 certification of the Humboldt Universität, Level B2 certification of the Goethe Institut)
- English (Level C2 certification at the Cambridge Advanced Exam)
- Programming skills in Python and LaTeX
- French driver's license