

Postdoctoral researcher**Dipartimento di Matematica Tullio Levi-Civita of the University of Padova****Date of Birth:** September 20, 1996**Phone:** +33 6 85 95 58 13**Email:** lucas.coeuret@math.univ-toulouse.fr**Website:** <https://www.math.univ-toulouse.fr/~lcoeuret/index.html>**Employement / Education**

2024- Present Postdoctoral researcher at the University of Padova**2021- 2024 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 MPSCI and MP* at Lycée Louis-le-Grand, Paris**2013-2014 Scientific Baccalauréat (option Abibac) with highest honors at Lycée Gustave Flaubert, Rouen****Research interests**

- Stability analysis of finite difference schemes on the transport equation on the whole or the half line
- Study of shock capturing properties of finite difference schemes for systems of conservation laws
 - Stability analysis of discrete shock profiles (traveling waves linking two states) of finite difference schemes for systems of conservation laws
- Stability analysis of traveling waves for parabolic problems using spatial dynamics techniques

Publications

Preprints

- **Linear stability of discrete shock profiles for systems of conservation laws**, *L. Coeuret* (2023, Submitted)
[\[ArXiV\]](#) [\[HAL\]](#)

Articles

- **Tamed stability of finite difference schemes for the transport equation on the half-line**, *L. Coeuret* (2024, *Mathematics of Computation*)
[\[Journal\]](#) [\[ArXiV\]](#) [\[HAL\]](#)
- **Local limit theorem for complex valued sequences**, *L. Coeuret* (2022, Accepted at *Asymptotic Analysis*)
[\[ArXiV\]](#) [\[HAL\]](#)

Proceedings

- Large time behavior of finite difference schemes for the transport equation, *L. Coeuret* (2023, Hyperbolic Problems: Theory, Numerics, Applications. Volume II. HYP 2022) [Journal] [HAL]

Seminars, Conferences and Scientific Schools

Equadiff 2024 10-14 June 2024, Karlstad (Sweden)

Presentation of a 30 minute talk

CANUM (Congrès d'Analyse Numérique) 2024 27-31 May 2024, Île de Ré (France)

Presentation of a 30 minute talk

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 responsibilities

- **02/2024 - Present** Representative of PhD Students and Postdoctoral Researchers on the Laboratory Council at the Institut de Mathématiques de Toulouse
- **09/2023 - Present** Organizer of the PDE student 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 L^AT_EX
- French driver's license