



Emile Deléage

Personal info

Date of birth September 1998

Nationality French

Education

2016-2018 Studies in Paris (Lycée Henri IV)

2018-2022 Student at ENS de Lyon

2018-2019 Licence Mathématiques Fondamentales, Université Claude Bernard (Lyon)

2019-2021 Master Mathématiques Avancées - Équations aux Dérivées Partielles, Université Claude Bernard (Lyon)

2022 Diplôme de l'ENS de Lyon

2022- PhD student at Institut de Mathématiques de Marseille and INRAE Grenoble - Modelling and Mathematical Analysis of complex gravity flow - Under the supervision of Charlotte Perrin and Thierry Faug.

Research interests

Partial differential equations applied to fluid mechanics

Modeling: granular flows, multiphase flows

Nonlinear hyperbolic equations, dispersive equations

Preprints

2024 **Hyperbolicity study of models for turbulent two-phase flows obtained from the variational principle**, (HAL)

2024 **A depth-averaged model for granular flow consistent with the incompressible $\mu(I)$ rheology**, with Gaël Loïc Richard (HAL)

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- 2024 **Stability of partially congested travelling wave solutions for the extended Aw-Rascle system**, with Muhammed Ali Mehmood, (HAL)

Publications

- 2024 **Well-posedness of Reynolds averaged equations for compressible fluids with a vanishing pressure**, in *Mathematical Methods in the Applied Sciences* 47 (2024), 817-824, DOI 10.1002/mma.9685 (HAL)
- 2023 **Well-posedness for the initial value problem associated to the Zakharov–Kuznetsov (ZK) equation in asymmetric spaces**. With Felipe Linares, in *SN Partial Differential Equations and Applications*, 2023, 4 (2), pp.9. (10.1007/s42985-023-00223-5) (HAL)

Scientific communications

- 2024 Congrès des Jeunes Chercheur.e.s en Mathématiques Appliquées, Lyon
- 2024 Workshop on compressible multiphase flows, Strasbourg
- 2024 CANUM, Île de Ré
- 2024 Lancement de l'ANR Bourgeons, Paris
- 2023 Junior Analysis Seminar, Imperial College London
- 2023 New Trends in Mathematical Fluid Dynamics, Grenoble

Teaching

- 2023-2024 L3 Centrale Méditerranée, Analyse numérique (TD) 36h
- 2023-2024 L3 Centrale Méditerranée, Analyse théorique (TD) 24h

PhD formations

- 2024 M2 course "Complex mechanics and granular matter" by Pierre Saramito and Didier Bresch
- 2024 Autumn school "Journées scientifiques 2024 du RT Terre et Énergies"
- 2023 M2 course "Waves in Continuum Media" by Sergey Gavriluk and Régis Cottreau
- 2023 Summer school "New trends in Mathematical Fluid Dynamics"
- 2022 École 2022 du GdR MathGeoPhy