Alexandre Rege

Phone:	FR: +33 6 38 46 56 41 - CH: +41 78 249 96 02
Email:	alxdr.rege@gmail.com
Website:	alex-rege.github.io/

Education, Research, and teaching positions

2021 - 2024 **Postdoctoral researcher**, Department of Mathematics, ETH Zürich, Switzerland.
Advisor: Mikaela Iacobelli.

2022 - 2023 **Lecturer**, Department of Mathematics, ETH Zürich, Switzerland.

2018 - 2021 **PhD in Applied Mathematics**, Laboratoire Jacques-Louis Lions, Sorbonne Université, Paris, France.
Thesis: **Kinetic models for magnetized plasmas**,
Advisors: Frédérique Charles and Bruno Després,
Defended on 18th October 2021.

2018 - 2021 **Teaching Assistant**, Sorbonne Université, Paris, France.
Exercise and computer sessions for Bachelor students in mathematics (192 hours over three years).

2016 - 2018 **Master of Science in Mathematical Modeling**, Université Paris Diderot and Sorbonne Université, Paris, France.
Specialized in the analysis of partial differential equations, and numerical analysis.

Publications and preprints

6. Jonathan Junné, Alexandre Rege **Stability estimates for the Vlasov–Poisson system with Yudovich density in kinetic Wasserstein distances**, preprint.
5. Immanuel Ben Porat, Mikaela Iacobelli, Alexandre Rege **Derivation of Yudovich solutions of Incompressible Euler from the Vlasov–Poisson system**, accepted in *SIAM Journal on Mathematical Analysis*.
4. Alexandre Rege **Stability estimates for magnetized Vlasov equations**, accepted in *Journal of Differential Equations*.
3. Alexandre Rege, **Propagation of velocity moments and uniqueness for the magnetized Vlasov–Poisson system**, *Communications in Partial Differential Equations, 48(3), 386–414,* 2023.
2. Alexandre Rege, **The Vlasov-Poisson system with a uniform magnetic field: propagation of moments and regularity**, *SIAM Journal on Mathematical Analysis, 53(2), 2452–2475,* 2021.
1. Frédérique Charles, Bruno Després, Alexandre Rege, Ricardo Weder, **The magnetized Vlasov–Ampère system and the Bernstein–Landau paradox**, *Journal of Statistical Physics, 183:23,* 2021.

Internships/Projects

Apr-Sep 2018 **Research internship/Master thesis**, *Laboratoire Jacques-Louis Lions, Sorbonne Université*, Paris, France.
On a Vlasov-Poisson-Magnetohydrodynamic model for magnetic plasmas: study of the well-posedness using a splitting method.
Advisors: Frédérique Charles and Bruno Després.

May-Jul 2017 **Project in statistics**, *Université Paris Diderot*, Paris, France.
On the LASSO method: study and implementation with R on medical data.
Advisor: Svetlana Gribkova.

Other Professional Experience

2015-2017 **Bike delivery**, *Take Eat Easy, Deliveroo, Stuart*, Paris, France.
Summer 2015 **Factory work**, *ArcelorMittal Solustil*, Arnas, France.

Communications

September 2024 *SwissMAP General meeting 2024*, Les Diablerets, Switzerland.
April 2024 *Symposium on PDE & Mathematical Physics*, Zürich, Switzerland.
May 2023 *Banff International Research Station Workshop*, Granada, Spain.
May 2023 *SwissMAP Site Visit* (Poster), Geneva, Switzerland.
September 2022 *SwissMAP General meeting 2022*, Les Diablerets, Switzerland.
June 2022 *Methods and Models of Kinetic Theory* (Poster), Pesaro, Italy.
May 2022 *Kinetic theory seminar*, Zürich, Switzerland.
April 2022 *Frontiers in kinetic equations for plasmas* (Poster), Cambridge, UK.
March 2022 *Applied Mathematics Seminar LMJL*, Nantes, France.
December 2020 *Congrès d'Analyse Numérique pour les jeunes 2020*, online.
December 2020 *4EU+ Annual Colloquium 2020 organized by Heidelberg University*, online.
November 2020 *Young researchers seminar CEREMADE*, Paris, France.
November 2019 *Celebrating 50 years of the LJLL* (Poster), Paris, France.
October 2019 *NumKin 2019*, Munich, Germany.
October 2019 *PhD student seminar of the LJLL*, Paris, France.
July 2019 *Vlasovia 2019* (Poster), Strasbourg, France.
October 2018 *PhD student seminar of the LJLL*, Paris, France.

Teaching

ETH Zürich, Zürich, Switzerland.

2022 *An Introduction to Partial Differential Equations*, Student Seminar for B. Sc. students.

2022 *An Introduction to Mean-Field Limits for Vlasov Equations*, Student seminar for M. Sc. students in mathematics.

Sorbonne Université, Paris, France.

2019-2020 *Numerical methods for ODEs*, Exercise and computer sessions in 3rd year of B.Sc. (62h).

2019 *Applied analysis*, Exercise sessions in 3rd year of B.Sc. (20h).

2019 *Programming in Python*, Computer sessions in 3rd year of B.Sc. (22h).

2019 *ODEs: theoretical analysis and numerical approximation*, Exercise and computer sessions in 2nd year of B.Sc. (16h).

2019 *Power series, Fourier analysis, Leibniz's rule and application to ODEs*, Exercise sessions in 2nd year of B.Sc. (20h).

2018 *Numerical approximation of functions*, Exercise and computer sessions in 3rd year of B.Sc. (48h).

Université Paris Diderot, Paris, France.

2016-2017 *Tutoring in mathematics*, Exercise sessions with 1st/2nd year B.Sc. students in general analysis and algebra (48h).

Mentoring

2023-2024 Master thesis of Aurel Zürcher (jointly with Mikaela Iacobelli)
2024 Semester paper of Grégoire Elinck (jointly with Mikaela Iacobelli)
2023 Reading course of Juan Felipe Perez Rodriguez

Scientific Responsibilities

2020 Co-writer of the welcome booklet for Postdocs and PhD students at LJLL
2018 - 2019 Co-organiser of the PhD student seminar at LJLL

Computer Skills

Advanced Knowledge: Python, Matlab, R
Basic Knowledge: C++

Languages

French: Native (C2)
English: Bilingual proficiency (C2, Cambridge English Proficiency certificate)
German: Professional working proficiency (B2)
Spanish: Basic Knowledge (A2)