Carl J. P. Johansson

Curriculum Vitae

EPFL
Institute of Mathematics
Station 8
CH-1015 Lausanne, Switzerland

Personal information

Nationality: Swedish and Swiss

Professional experience

June 2022 - present
Doctoral Assistant, *Chair of Mathematical Analysis, Calculus of Variations and PDE's*, EPFL, Lausanne
- **Advisor:** Prof. Maria Colombo.

January 2022 - May 2022
Military service, *Swiss Armed Forces*

Education

June 2022 - present
PhD Student, *Chair of Mathematical Analysis, Calculus of Variations and PDE's*, EPFL, Lausanne
- **Advisor:** Prof. Maria Colombo.

September 2020 – February 2022
Master degree, *Mathematics*, EPFL, Lausanne
- **Master thesis:** *"Nonsmooth and nonenergetic solutions of PDE's through convex integration"*, Chair of Mathematical Analysis, Calculus of Variations and PDE's. (available online)
  Advisors: Dr. Riccardo Tione and Prof. Maria Colombo.
- **Semester project:** *"About the divergence of Fourier series - Continuous and L^1 functions"*, Chair of Partial Differential Equations.
  Advisor: Prof. Joachim Krieger.

September 2018 – August 2020
Bachelor degree, *Mathematics*, EPFL, Lausanne
- **Bachelor project:** *"Lax-Milgram, Fixed point theorems and stationary solutions to the Navier-Stokes equations"*, Chair of Mathematical Analysis, Calculus of Variations and PDE's.
  Advisors: Dr. Luigi De Rosa and Prof. Maria Colombo.

August 2015 – July 2018
High school degree, *Gymnase de Chamblandes*, Pully
- **Option:** Physics and applied mathematics.
- **Matura thesis:** *"Simulation et décryptage d'une machine Enigma" (translation: "Simulation and decryption of an Enigma machine").*
  Advisor: Luc Dessauges.

August 2013 – June 2018
Cours Euler, *Mathematics*, EPFL, Lausanne
- Website: https://www.epfl.ch/education/education-and-science-outreach/fr/cours-euler/

Publications

[1] C. J. P. Johansson and M. Sorella. Anomalous dissipation via spontaneous stochasticity with a two-dimensional autonomous velocity field. *arXiv preprint*, 2024.

[2] M. Dolce, C. J. P. Johansson, and M. Sorella. Dissipation enhancing properties for a class of Hamiltonian flows with closed streamlines. *arXiv preprint*, 2024.

[3] C. J. P. Johansson and M. Sorella. Nontrivial absolutely continuous part of anomalous dissipation measures in time. *arXiv preprint*, 2023.

[4] C. J. P. Johansson. Wild solutions to scalar Euler-Lagrange equations. *Tran. Amer. Math. Soc.*, 377(7):4931–4960, 2024.

[5] C. J. P. Johansson and R. Tione. T_5 configurations and hyperbolic systems. *Comm. Cont. Math.*, 26(3), 2024.

Awards

2024 **Dean's Award for Excellence in Teaching 2023-24, School of Basic Sciences, EPFL**

2022 **Prize for the best Master thesis poster in mathematics, Mathematics Section, EPFL**

2020 **Among the prizewinning projects of "Global Issues 2019", College of Humanities at EPFL**
- **Project:** "An army of cockroaches against food waste" in collaboration with Elsa Bernheim, Amandine Favre, Emma Most and Andrea Suarez Sagarra
- Website: https://actu.epfl.ch/news/prizewinning-students-of-global-issues-2019-celebr/

2018 **Matura Awards 2018, Swiss Mathematical Society, First rank**
- Award for the best Matura thesis in Switzerland in the field of mathematics during 2018.
- Website: https://math.ch/about-sms/matura-awards/awards2018.php

Talks at conferences, workshops, seminars...

March 2023 **Doctoral Days 2023**, Neuchâtel, Switzerland (March 14)

May 2023 **Graduate Student Seminar (Bernoullis Tafelrunde)**, Basel, Switzerland (May 8)

May 2023 **Lightning talk (Short Talks by Junior Participants) at Recent Advances in Mathematical Fluid Dynamics**, Duke University, United States (May 19)

February 2024 **Contributed talk at Turbulence on the Banks of the Arno**, Pisa, Italy (February 1)

Participation in summer schools, conferences and workshops

August 2021 **Jyväskylä Summer School 2021**, Jyväskylä, Finland (online)

June 2022 **Hypatia 2022**, Barcelona, Spain

June 2022 **Summer School on Fluids and Turbulence**, Lyon, France

August 2022 **Hausdorff School on Geometric Analysis and Nonlinear Partial Differential Equations**, Bonn, Germany

May 2023 **Recent Advances in Mathematical Fluid Dynamics**, Duke University, United States

July 2023 **Summer school: Deterministic and random features of fluids**, Lausanne, Switzerland

July 2023 **Stability and dynamics in fluid mechanics and kinetic theory**, London, United Kingdom

September 2023 **Bernoulli Workshop: Enjoying Probability and Fluids in Lausanne**, Lausanne, Switzerland

January 2024 **Turbulence on the Banks of the Arno**, Pisa, Italy

February 2024 **Phase mixing, kinetic theory and fluid mechanics**, Les Diablerets, Switzerland

February 2024 **Differential Inclusions and Continuum Mechanics**, ETH Zürich, Switzerland

May 2024 **Oberwolfach Seminar: Long-Time Behavior in Fluids**, Oberwolfach, Germany

May 2024 **Summer school: (in)-stability phenomena in fluid mechanics**, Cergy Paris Université, France

August 2024 **Metric Geometry and Geometric Measure Theory**, University of Fribourg, Switzerland

Teaching experience

Instructor at EPFL
- **Fall 2022:** Algebraic structures, Cours Euler (Feedback Report available upon request)
- **Spring 2024:** Algebraic structures, Cours Euler

Teaching assistant at EPFL

- **2015 - 2021:** Various courses at Cours Euler
- **Fall 2019:** Analysis I
- **Spring 2021:** Analysis IV
- **Fall 2021:** Analysis III

Mentorship

Spring 2023	**Sergio Scalabrino**, *Master semester project*
Autumn 2023	**Vincent Dardel**, *Bachelor project*
Spring 2024	**Antonio Tirotta**, *Master semester project*
Autumn 2024	**Nuno Carneiro**, *Master thesis*

Research visits

Spetember 2024	**Bocconi University**, *Milan, Italy*, one week, invited by: Prof. Elia Bruè

Languages

Swedish	native
French	fluent
English	fluent
German	basic working proficiency

Technical skills

Basics of C++, Python, Matlab/Octave and Maple

Last updated: December 30, 2024