

Samuel Tréton

Postdoctoral fellow in applied mathematics

Short biography

- 2024 – 2026 **Postdoctoral fellow**, University of Western Brittany
- 2021 – 2024 **PhD Student**, University of Rouen Normandy
Analysis of Microscopic and Macroscopic Exchange Dynamics for Ecology and Epidemiology
Advisor: Matthieu Alfaro
- 2016 – 2021 **Bachelor's and Master's degrees**, University of Rouen Normandy

Publications

- 2024 S. TRÉTON,
Blow-up vs. global existence for a Fujita-type Heat exchanger system,
arXiv:2307.00843, published in *SIAM Journal on Mathematical Analysis (SIMA)*
(DOI:10.1137/23M1587440)
- 2023 M. ALFARO, R. DUCASSE, AND S. TRÉTON,
The field-road diffusion model: Fundamental solution and asymptotic behavior,
arXiv:2207.01859, published in *Journal of Differential Equations* (DOI:10.1016/j.jde.2023.05.002)

Preprints

- 2024 R.DUCASSE ET S. TRÉTON,
Emergence of complexity in opinion propagation: A reaction-diffusion model,
arXiv:2412.10000
- M. ALFARO, M. MOURRAGUI ET S. TRÉTON,
Bridging bulk and surface: An interacting particle system towards the field-road diffusion model,
arXiv:2406.14093

Teaching

- 2023 – 2024 **Analysis Tutorial (32h)**, *Bachelor's Degree in Computer Science, 1st year*, University of Rouen
- Python Practical Work (32h)**, *Bachelor's Degree in Maths, 2nd year*, University of Rouen
- 2022 – 2023 **Mathematical Tools (24h)**, *Bachelor's Degree in Chemistry, 1st year*, University of Rouen
- GeoGebra Practical Work (13h)**, *Bachelor's Degree in Mathematics, 1st year*, University of Rouen
- Statistical Modeling for Biology (27h)**, *Master's Degree in Biology, 1st year*, University of Rouen
- 2021 – 2022 **Analysis Tutorial (37h)**, *Bachelor's Degree in Mathematics/Physics/Computer Science, 1st year*, University of Rouen
- Statistical Modeling for Biology (27h)**, *Master's Degree in Biology, 1st year*, University of Rouen

Talks Given

- 2024 **Analysis, stochastic phenomena and applications seminars**, *Brest* (talk)
Analysis seminar, *Tours* (talk)
Normandy Meetings on Theoretical and Numerical Aspects of PDEs, *Rouen* (poster)
Applied mathematics seminar, *Nantes* (presentation)
CIRM 3073 – Mathematical Biology: Collective Behavior and Pattern Formation, *Marseille* (poster)
Journées Maths Bio Santé, *Nantes* (poster et presentation)
Mathematical modelling of epidemiological dynamics 2024, *Le Havre* (presentation)
A ReaDiNet workshop on reaction-diffusion systems and population dynamics, *Parent (Auvergne)* (presentation)
Math-Bio-Health Seminar of the IMT, *Toulouse* (presentation)
ReaDiNet 2024: International conference on parabolic and stochastic models in mathematical biology, *Clermont-Ferrand* (presentation)
Seminar PDE and Mathematical Physics at the IMB, *Bordeaux* (presentation)
- 2023 **15th Normandy Mathematics Federation Day**, *Le Havre* (poster and presentation)
RMR 2023: Mathematical models for biology and health, *Rouen* (presentation)
Research School organized by Polytechnique, *Aussois* (presentation)
- 2022 **Working Group on PDE at the Institut Denis Poisson**, *Orléans* (presentation)
Normandy BioMaths Working Group, *Le Havre* (presentation)
14th Normandy Mathematics Federation Day, *Caen* (poster)

Conferences and workshops

- 2024 **Analysis seminar**, *Brest*
Analysis seminar, *Tours*
Normand Meetings on Theoretical and Numerical Aspects of PDEs, *Rouen*
CJC-MA2024 : Congress of Young Researchers in Applied Mathematics, *Lyon*
Applied mathematics seminar, *Nantes*
CIRM 3109 – Non-local branching processes, *Marseille*
CIRM 3073 – Mathematical Biology: Collective Behavior and Pattern Formation, *Marseille*
Maths Bio Health Days, *Nantes*
Mathematical modelling of epidemiological dynamics 2024, *Le Havre*
A ReaDiNet workshop on reaction-diffusion systems and population dynamics, *Parent (Auvergne)* (photo)
Math-Bio-Health Seminar of the IMT, *Toulouse*
Normandy BioMaths Working Group 7, *Rouen*
Seminar PDE and Mathematical Physics at the IMB, *Bordeaux*
- 2023 **Normandy BioMaths Working Group 6**, *Rouen*
Cellular Automata, Particle Systems, and Self-Organization, *Rouen*
CIRM 3067 – Ecology, epidemiology and evolution, *Marseille*
Probability Meeting 2023 on Particle Systems, *Rouen*
15th Normandy Mathematics Federation Day, *Le Havre*
RMR 2023: Mathematical models for biology and health, *Rouen*
Research school organized by Polytechnique, *Aussois*
Normandy BioMaths Working Group 5, *Le Havre*

- PDE and Applications Day, *Le Havre***
- ReaDiNet 2023: International conference on parabolic and stochastic models in mathematical biology, *online***
- 2022 **Working Group on PDE at the Institut Denis Poisson, *Orléans***
- Normandy BioMaths Working Group 4, *Rouen***
- PDE and Applications Day, *Le Havre***
- Parabolic and kinetic models in population dynamics, *Toulouse***
- CANUM 2022, *Évian-les-Bains***
- 14th Normandy Mathematics Federation Day, *Caen***
- Normandy BioMaths Working Group 3, *Le Havre***
- CIRM Research School, *Marseille***
- IHP Quarter – Mathematical models and organization of living matter, *Paris***
- 2021 **CIRM 2396 – Nonlocal Models in Biology, *Marseille***
- Normandy BioMaths Working Group 2, *Rouen***
- PDE and Applications Day, *Online***
- Normandy BioMaths Working Group 1, *Online***
- MBMC 2021: Mathematical Biology on the Mediterranean Coast, *Online***

Collective Responsibilities and Scientific Animations

- 2024 Presentation on mathematics research to Bachelor's and Master's students in mathematics at the University of Rouen (*presentation*)
- 2023 – 2024 University Coordinator for the Doctoral Workshop between the INSA Mathematics Laboratory (LMI) and Raphaël Salem Mathematics Laboratory (LMRS)
- 2023 – 2024 PhD student and ATER representative at the Mathematics Department Council of the University of Rouen
- 2021 – 2023 Facilitation of the LMRS Booth at the Science Festival

Other

- Code and Software** Bash – Python – Matlab – Scilab – R – FreeFem – AutoHotKey – HTML – Inkscape – \LaTeX
- English** Scientific
- Interests** Hiking (Albâtre Coast in 2018: 130 km) and cycling (crossing Normandy in 2019: 300 km)