

Matthieu Ménard | Curriculum vitae

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Since September I have a postdoctoral position in Université Libre de Bruxelles (under the supervision of Mitia Duerinckx). Before I was a PhD Student at Université Grenoble Alpes (under the supervision of Christophe Lacave and Evelyne Miot), my thesis is entitled "Mean-field limits in kinetic theory and fluid mechanics" (to be defended on December 12th).

Studies

Institut Fourier, Université Grenoble Alpes, Grenoble, France 2020-2023

PhD in mathematics

Supervised by Christophe Lacave and Evelyne Miot, entitled "Mean-field limits in kinetic theory and fluid mechanics".
To be defended on December 12th, 2023.

École Normale Supérieure, Lyon, France 2016 - 2020

Master's degree in mathematics 2019-2020

Analysis of partial differential equations.

Master Feadep (Mathematical education) 2018-2019

Agrégation de mathématiques (french national teaching diploma) ranked 28/303.

Bachelor's degree in mathematics - 2017.

Lycee Chateaubriand, Rennes, France 2014-2016

*CPGE MPSI-MP**

Research internships

Institut Fourier, Grenoble, France 2020

Euler equation with point vortices, supervised by Christophe Lacave.

Université Libre de Bruxelles, Bruxelles, Belgium 2018

Gromov's non-squeezing theorem, supervised by Mélanie Bertelson.

Institut Fourier, Grenoble, France 2017

Bessel functions, supervised by Catriona McLean.

Articles

Mean-Field Limit Derivation of a Monokinetic Spray Model with Gyroscopic Effects April 2022

We show the local strong well-posedness and the mean-field limit derivation of a two dimensional spray model with gyroscopic effects (coupled system between the Euler equation and a monokinetic Vlasov-like equation). Accepted in SIAM Journal on Mathematical Analysis - SIMA. Arxiv : <https://arxiv.org/abs/2204.02145>.

Mean-Field Limit of Point Vortices for the Lake Equations September 2023

We show the mean-field limit derivation of a system of point vortices for the lake equations using a modulated energy method. Arxiv : <https://arxiv.org/abs/2309.10453>.

Teaching

- Matrices and functions of several variables (second year physics bachelor's) 2022
- Introduction to numerical analysis (second year mathematics bachelor's) 2022
- Applied linear algebra (first year physics bachelor's) 2021
- Introduction to mathematical modeling and to population dynamics (first year biology bachelor's) 2021
- Mathematical methods for physicists (first year physics bachelor's) 2020

Conferences

Talks given.....

Mathematical physics seminar - Grenoble - Institut Fourier	<i>December 2022</i>
Mean-field limit of point vortices for the lake equations.	
Horizons in non-linear PDEs summer school - Ulm, Germany	<i>September 2022</i>
Mean-field limit derivation of a gyrokinetic spray model.	
"Singflows" conference - Bordeaux	<i>April 2022</i>
Mean-field limit derivation of a gyrokinetic spray model.	
PHD days - Institut Fourier - Grenoble	<i>October 2021</i>
Interactions Of Vortex And Particles In A Two-Dimensional Fluid.	

Conferences attended.....

Advanced Summer School on Mathematical Fluids Dynamics	<i>2023</i>
Water waves, IESC, Cargèse	
New trends in mathematical fluid dynamics	<i>2023</i>
Fluid mechanics, Institut Fourier, Grenoble	
Mathflows conference	<i>2022</i>
Fluid mechanics, Cirm, Marseille	
When kinetic theory meets fluid mechanics	<i>2022</i>
Summer school in ETH Zurich	
Journées EDP	<i>2022</i>
Partial differential equations, Obernai.	
Journées "Jeunes Edpistes"	<i>2022</i>
Partial differential equations, Lyon.	
Journées EDP Auvergne Rhône-Alpes	<i>2021</i>
Partial differential equations, Saint-Etienne.	
Advanced Summer School On Mathematical Fluids Dynamics	<i>Août 2021</i>
Geophysical Fluid Dynamics and Wave turbulence, IESC, Cargèse.	
Journées EDP	<i>2021</i>
Partial differential equations, Obernai.	
MathsInFluid	<i>2020-</i>
Workshop in fluid mechanics, Lyon	
Journées Louis Antoine	<i>2019</i>
Numerical Analysis, Rennes.	
Introductory workshop : Microlocal analysis	<i>2019</i>
Summer school in MSRI, Berkeley.	

Invitations

University of Toronto	<i>2023</i>
Invited by Catherine Sulem for two months.	

Responsibilities

Member of the Institut Fourier research council (UMR 5582, non-permanents).	<i>2022-</i>
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Languages

French (Native)

English (Professional, C1 certification from *Cambridge English Advanced* exam)

Popularisation

MathaLyon exhibition

2018

Mathematical exhibition for middle school students, Lyon.

Jury for TFJM²

2018

Member of jury for the french tournament for young mathematicians, Lyon.