

DONATI MARTIN

Personal Information

DONATI Martin, Louis, Roger.
 Born on April 22nd 1995 in France.
 Nationality : French.
 Languages :
 — French (mother tongue)
 — English (fluent)
 — Italian (basic)
 Two children born in Sept. 2023.

professional e-mail : martin.donati@univ-grenoble-alpes.fr

Website : <https://www.martin-donati.fr/index-en.html>

ORCID iD : 0000-0003-0997-439X

CURRENT POSITION

Postdoctoral researcher in mathematics under the supervision of **Thierry Gallay**, since Sep. 01 2024.
 Institut Fourier, Université Grenoble Alpes, supported by ANR BOURGEONS (ANR-23-CE40-0014-01).

Research interests

Vortex structures in fluids

- Euler, SQG and Navier-Stokes equations
- Dynamics of vortices, collisions
- Localization and confinement of vorticity

- Boundary effects
- Stability and instability of solutions
- Helical vortex filaments
- Weakly viscous vortices under strain

Academic Background and Positions

PREVIOUS POSITIONS

Postdoctoral researcher

UMPA, ENS de Lyon et Institut Fourier, Université Grenoble Alpes
 Founded by the Simons collaboration on *Wave Turbulence* (Simons Foundation)

from Sep. 2023 to Aug. 2024

ATER (1 year research and teaching position)

Institut Fourier, Université Grenoble Alpes,

from Sep. 2022 to Aug. 2023

PhD Student under the supervision of **Dragoş Iftimie**,

Institut Camille Jordan, Université Claude Bernard Lyon 1
Title of the thesis : Point-vortex collisions and confinement in bounded domains
Defended on Sep. 15 2022.

from Sep. 2019 to Aug. 2022

EDUCATION

ENS de Lyon - Department of Mathematics

2015-2019

Research internships in 2018-2019,
 Master in PDE obtained in 2018,
 Licence of mathematics obtained in 2016

CPGE - MPSI/MP*, Lycée Masséna, Nice

2012 - 2015

Bac S, Lycée Henri Matisse, Vence

2012

INTERNSHIPS

Projet long de recherche 2 (research internship)

February 2019 - July 2019

Supervised by [Paolo Buttà](#) and [Carlo Marchioro](#), Università La Sapienza - Dipartimento di Matematica Guido Castelnuovo, Italy

Projet long de recherche 1 (research internship)

September 2018 - February 2019

Supervised by [Dragos Iftimie](#), Université Claude Bernard Lyon 1 - ICJ, France

Stage de recherche de M2 (research internship)

4 months (2018)

Supervised by [Dragos Iftimie](#), Université Claude Bernard Lyon 1 - ICJ, France

Stage d'initiation à la recherche de M1 (initiation to research)

8 weeks (2017)

Supervised by [Carl Graham](#), École Polytechnique - CMAP, France

Stage d'initiation à la recherche de L3 (initiation to research)

5 weeks (2016)

Supervised by [Julien Poisat](#) and [Emeric Bouin](#), Université Paris-Dauphine - CEREMADE, France

Scientific contributions and diffusion

PREPRINTS

- **On the dynamics of leapfrogging vortex rings**
With [Lars Eric Hientzsch](#), [Christophe Lacave](#) and [Evelyne Miot](#), arXiv :2503.21604.
- **Fast relaxation of a viscous vortex in an external flow**
With [Thierry Gallay](#), arXiv :2503.20643.
- **Long-time Confinement near Special Vortex Crystals**
arXiv :2410.14221.

PUBLISHED ARTICLES

- **Dynamics of helical vortex filaments in non viscous incompressible flows**
With [Christophe Lacave](#) and [Evelyne Miot](#), arXiv :2403.00389, to appear in Bulletin de la SMF.
- **Existence and Uniqueness for the SQG Vortex-Wave System when the Vorticity is Constant near the Point-Vortex**
With [Dimitri Cobb](#) and [Ludovic Godard-Cadillac](#), arXiv :2401.02728, to appear in Siam J. for Math. Anal.
- **On the Dynamics of Point-Vortices with Positive Intensities collapsing with the boundary**
With [Ludovic Godard-Cadillac](#) et [Dragoş Iftimie](#), Physica D : Nonlinear Phenomena, 134402, 2024..
- **Construction of unstable concentrated solutions of the Euler and gSQG equations**
Discrete and Continuous Dynamical Systems, 2024, 44(10) : 3109-3134.
- **Hölder regularity of collapses of point vortices**
With [Ludovic Godard-Cadillac](#), 2023 Nonlinearity **36** 5773.
- **Two-dimensional point vortex dynamics in bounded domains : global existence for almost every initial data**
2022, SIAM J. Math. Anal., 54(1), 79–113.
+ SIAM Review, Vol. 65, issue 1 - **Improbability of collisions of point-vortices in bounded planar domains (SIGEST Award)**
- **Long time confinement of vorticity around a stable stationary point vortex in a bounded planar domain**
With [Dragoş Iftimie](#), Ann. Inst. H. Poincaré Anal. Non Linéaire 38 (2021), no. 5, pp. 1461–1485.

TALKS

Mar. 20 2025 **PDE Seminar**, LMA, Poitiers
Mar. 14 2025 **Analysis Seminar**, LAMA, Chambéry
Mar. 11 2025 **Journées de l'ANR BOURGEONS**, Grenoble
Mar. 03 2025 **PDE and Analysis Seminar**, Laboratoire AGM, Cergy
Fev. 06 2025 **Analysis Seminar**, IRMA, Strasbourg
Jan. 09 2025 **Journées Jeunes Edpistes en France**, Nice
Dec. 06 2024 **Analysis Seminar**, EPFL, Lausanne, Suisse
Nov. 07 2024 **Journées EDP Auvergne Rhône Alpes**, Laboratoire Jean Kuntzmann, Grenoble
Aug. 29 2024 **16th French-Romanian Colloquium**, UPB, Bucharest, Romania
Jun. 10 2024 **Séminaire de Physique-Mathématique**, Institut Fourier, Grenoble
Apr. 08 2024 **Séminaire d'Analyse**, Institut de Mathématiques de Toulouse
Mar. 07 2024 **Séminaire Analyse et EDP**, Laboratoire de Mathématiques d'Orsay
Jun. 01 2023 **Séminaire EDP**, Institut de recherche mathématique de Rennes
Apr. 25 2023 **Séminaire Analyse et EDP**, Institut Élie Cartan de Lorraine, Nancy
Nov. 30 2022 **Séminaire compréhensible**, Institut Fourier, Grenoble
Nov. 17 2022 **Journées EDP Auvergne Rhône Alpes**, Institut Camille Jordan, Lyon
Sep. 15 2022 **PhD defense**, Institut Camille Jordan, Lyon
Dec. 13 2021 **Séminaire de Physique-Mathématique**, Institut Fourier, Grenoble
Nov. 30 2021 **Demi-journée des jeunes lyonnais en analyse et modélisation**, ICJ, Lyon
Oct. 26 2021 **Séminaire des doctorants**, Laboratoire de Mathématiques Jean Leray, Nantes
Sep. 28 2021 **V Workshop on fluids and PDE**, online (Campinas - Brasil)
Jan. 25 2021 **Séminaire des doctorants de l'ICJ et de l'UMPA**, Institut Camille Jordan, Lyon.

POSTER SESSIONS AND BLITZ TALKS

12 Nov. 2024 **Mathematics of fluids in motion** (Conference), CIRM, Marseille
Oct. 29 2024 **Congrès des Jeunes Chercheur.e.s en Mathématiques Appliquées** Lyon
Jan. 09 2024 **Launch days of ANR BOURGEONS**, Laboratoire Jacques-Louis Lions, Paris
Jun. 06 2023 **New Trends in Mathematical Fluid Dynamics** (Summer School), Grenoble
Jul. 23 2022 **Journée de l'École Doctorale**, Institut Camille Jordan, Lyon

Teaching Experience

Teaching at the UGA (ongoing)

2023-2025

- * 48h of TD in Master 1 (fourth year) for the Analysis course,
- * 32h of TD in Master 1 for the PDE course.

as ATER at the UGA

2022-2023

- * 192h of teaching, courses and TD, in first year of University at the Département Licence Sciences et Technologies of the Université Grenoble Alpes.

as a PhD Student

2020-2022

- * 128h of TD in L1 (first year) at the Université Claude Bernard Lyon 1.

Colles in CPGE at Lycée du Parc (Lyon, France)

2017-2019

- * 128h.

Other activities

POPULARIZATION

Jan. 07 2019 **Fonctions peu régulières**, popularization talk for the undergraduate students of CPGE Lycée Masséna,

Mar. 16 2017 **Histoire de la pensée mathématique : La théorie axiomatique**, popularization talk for the undergraduate students of CPGE Lycée Masséna.

PEER REVIEW

Reviews done for several journals, authenticated on ORCID or Web of Science.

SUPERVISION

Supervision of an internship of first year University student

2023

"Stage d'excellence" of [Ahmed Aziz Bousbih](#) at the Institut Fourier, "Control of an ODE".

Internship duration : 5 weeks.