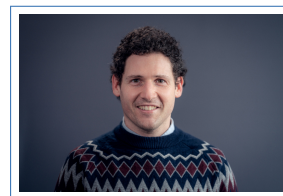


# Marc Pegon

Université de Lille  
Laboratoire Paul Painlevé

✉ [marc.pegon@univ-lille.fr](mailto:marc.pegon@univ-lille.fr)

🌐 <https://mpegon.perso.math.cnrs.fr>



## Education

- 2022–present **Assistant professor**, *Université de Lille*, Laboratoire Paul Painlevé, Inria RAPSODI team
- 2020–2022 **Postdoctoral researcher**, *Université de Lille*, Laboratoire Paul Painlevé, Inria RAPSODI team, Funded by the Labex CEMPI  
Supervised by Benoît Merlet
- 2019–2020 **Temporary Research and Teaching Fellow**, *Université de Paris (P7)*
- 2016–2019 **PhD in Mathematics**, *Université de Paris (P7)*, Some contributions to geometric variational problems involving nonlocal energies, Supervised by Vincent Millot  
Defended December 11th 2019
- 2015–2016 **Master's degree in Mathematics of modeling**, *Sorbonne Université (P6)*
- 2014–2015 **Agrégation de mathématiques: Selective exam to teach Mathematics in the French educational system**, *ÉNS Paris-Saclay*, Rank 86/1969
- 2009–2013 **School of engineering**, *Ensimag*, Grenoble  
Specialized in Computer Science

## Research

### PhD thesis

- Title Some contributions to geometric variational problems involving nonlocal energies
- Supervisor Vincent Millot
- Dates September 2016–December 2019
- Referees Francesca Da Lio and Séverine Rigot
- Jury
- Hajer Bahouri
  - Jimmy Lamboley
  - Vincent Millot
  - Cyril Imbert
  - Paul Laurain
  - Séverine Rigot

### Research interests

- Calculus of variations
- Partial differential equations
- Harmonic maps
- Geometric measure theory
- Fractional Laplacian
- Isoperimetric problems

## Publications

- 2022 **Uniform  $C^{1,\alpha}$ -regularity for almost-minimizers of some nonlocal perturbations of the perimeter**, Preprint ([Hal-03623418](#)), 38 pages, Michael Goldman, Benoît Merlet, Marc Pegon
- 2021 **Compactness and structure of zero-states for unoriented Aviles-Giga functionals**, Preprint ([arXiv:2112.04959](#)), 35 pages, Michael Goldman, Benoît Merlet, Marc Pegon, Sylvia Serfaty
- 2021 **Large mass rigidity for a liquid drop model in 2D with kernels of finite moments**, Journal de l'École polytechnique – Mathématiques **9**, pp 63–100 ([arXiv:2106.02442](#)), 26 pages, Benoit Merlet, Marc Pegon
- 2020 **Large mass minimizers for an isoperimetric problem with nonlocal integrable potentials**, Nonlinear Analysis **211** ([arXiv:2003.01165](#)), 41 pages, Marc Pegon
- 2019 **Partial regularity for fractional harmonic maps into spheres**, Archive for Rational Mechanics and Analysis **242**, pp 747–825 ([arXiv:1901.1909.11466](#)), 53 pages, Vincent Millot, Marc Pegon, Armin Schikorra
- 2019 **Minimizing 1/2-harmonic maps into spheres**, Calculus of Variations and Partial Differential Equations **59** ([arXiv:1901.05790](#)), 30 pages, Vincent Millot, Marc Pegon

## Invited talks

- November 2022 **Harmonic analysis seminar**, Université Paris–Saclay
- September 2022 **INdAM Workshop Anisotropic isoperimetric problems & related topics**, Rome
- March 2022 **Analysis seminar**, Université Toulouse III - Paul Sabatier
- February 2022 **Numerical Analysis and PDE seminar**, Institut de Mathématique d'Orsay
- December 2021 **Workshop Calculus of Variations in Nancy (GDR CalVa)**, Université de Lorraine
- Novembre 2021 **Start of the year meetup of the Laboratoire Paul Painlevé**, Université de Lille
- November 2021 **Analysis, Physics, Logic seminar**, Virginia Commonwealth University, Online
- September 2021 **Workshop: Variational methods and applications**, Centro De Giorgi, Pisa
- June 2021 **Congress of the “Société de Mathématiques Appliquées et Industrielles”**, SMAI
- March 2021 **PDE seminar for young french researchers**, Université de Franche-Comté
- October 2020 **Analysis seminar**, ETH Zürich, Online
- August 2020 **15th Franco-Romanian Colloquium on Applied Mathematics**, Minisymposium Canceled due to Covid
- June 2020 **Online geometric analysis seminar**, Univ. Salzburg, Halle, Pittsburgh, Freiburg, [Webpage](#)
- March 2020 **PDE seminar for young researchers**, [Journées Jeunes EDPistes](#), Canceled due to Covid
- March 2020 **Analysis seminar**, TU Dortmund
- January 2020 **PDE seminar**, Institut Élie Cartan de Lorraine (IECL)
- November 2018 **Analysis seminar**, The University of Texas at Austin
- November 2018 **Calculus of Variations seminar (GT CalVa)**, Université Paris Sud
- June 2018 **Workshop Calculus of Variations**, Université Paris Diderot

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## Teaching

Teaching fellow	from Jan. 2022 to June 2022, at Université de Lille (36 heures)	Tutorial
Teaching fellow	From Sept. 2019 to August 2020 at Université de Paris (96 hours)	Lectures/Tutorial
Teaching fellow	From Sept. 2016 to August 2019 at Université de Paris (64 hours/year)	Tutorial
Teaching fellow	From Sept. 2015 to June 2016 at Lycée Saint-Louis ( $\simeq$ 76 hours)	Lectures/Lab work

### Teaching details

- 2022 **Functions of several variables**, *L2 MIASHS*, Partial derivatives, implicit functions, Lagrange multiplier, convexity, Tutorial
- 2020 **Ordinary differential equations**, *3rd year students*, Linear and simple non-linear ODE, systems, maximal solutions, existence, uniqueness, Tutorial
- 2019–2020 **Basic Analysis**, *1st year engineering students*, ODE, Integration, Fourier, Laplace, TDs
- 2018–2020 **Mathematical modeling for biology students**, *1st year students*, Basic notions on sequences and functions, Tutorial
- 2016–2019 **Basic analysis and algebra**, *1st year students*, Vector spaces, linear algebra, integration, ODE, Tutorial/Lectures
- 2016–2017 **Mathematical reasoning**, *1st year students*, Logic, sets, quantifiers, Tutorial
- 2015–2016 **Supervision of computer science projects for biology students**, *2nd year Preparatory Classes to school of engineering*, Data structures, trees, graphs, sorting algorithms, Python programming, Lectures/Lab work/Projects  
Lycée Saint-Louis

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## Responsibilities

- 2021–2022 **“BOUM 2021” funding** from the SMAI organization for the **Co-organization of a 3-day workshop (4-6 July 2022) in Lille on Calculus of Variations and applications**
- 2016–2018 **Elected representative of the PhD students of Université de Paris**

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## Other activities

- 2020 **Contribution to the book “131 développements pour l’oral : Agrégation externe Mathématiques/Informatique”**, To prepare for a selective entrance exam to teach mathematics in the french educational system

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## Languages

French	Native
English	Fluent
German	Notions