Bohdan Bulanyi

▬▬ Personal information

Born	Zaporijjia (Ukraine), 5 September, 1994
Nationality	Ukraine
Address	Università di Bologna,
	Dipartimento di Matematica,
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▬▬ Positions

2024–2025 **Postdoctoral researcher**, Università di Bologna, Bologna, Italy, Advisor Prof. Berardo Ruffini

2021–2024 **Postdoctoral researcher**, Université catholique de Louvain, Louvain-la-Neuve, Belgium, Advisor Prof. Jean Van Schaftingen

▬▬ Education

2018–2021 **Ph.D. in Mathematics, Mention: Très honorable**, Université Paris Cité, Laboratoire Jacques-Louis Lions, Paris, Title of the thesis: Regularity for optimal compliance problems with length penalization, Advisor: Prof. Antoine Lemenant
Defended on September 24, 2021

2016–2018 **Master Degree in Mathematics, Mention: Très bien, ranked** 1**st**, Université de Toulon, Toulon, Title of the thesis: A variant of the Wasserstein distance and time formulation of the associated transport problem, Advisors: Prof. Guy Bouchitté and Prof. Thierry Champion

2013–2017 **Bachelor Degree in Mathematics, with distinction**, Taras Shevchenko National University of Kyiv, Kyiv, Specialization: Mathematical Analysis

▬▬ Research interests

- ○ Calculus of variations
- ○ Partial differential equations
- ○ Harmonic analysis
- ○ Geometric measure theory
- ○ Anisotropic variational problems
- ○ Sobolev mappings between manifolds

- ○ Regularity theory
- ○ Optimal transport
- ○ Optimization, Homogenization, Inverse problems

Scientific papers

- ○ Regularity for the planar optimal p-compliance problem, joint with A. Lemenant, **ESAIM Control Optim. Calc. Var, 27:35, 2021**
- ○ On the importance of the connectedness assumption in the statement of the optimal p-compliance problem, **J. Math. Anal. Appl., 499:125064, 2021**
- ○ Partial regularity for the optimal p-compliance problem with length penalization, **Calc. Var. Partial Differential Equations, 61:11, 2022**
- ○ Singular extension of critical Sobolev mappings under an exponential weak-type estimate, joint with J. Van Schaftingen, **J. Funct. Anal., 288:110681, 2024**
- ○ On the equivalence of static and dynamic weak optimal transport, **submitted, arXiv:2311.13872, 2023**
- ○ Limiting behavior of minimizing p-harmonic maps in 3d as p goes to 2 with finite fundamental group, joint with J. Van Schaftingen and B. Van Vaerenbergh, **Accepted in Arch. Ration. Mech. Anal., arXiv:2401.03583, 2024**
- ○ Threshold dynamics approximation schemes for anisotropic mean curvature flows with a forcing term, joint with B. Ruffini, **submitted, arXiv:2501.10341, 2025**

Qualifications

2024-2027   **Maître de conférences**, Sections 25, 26

Teaching

2018–2019 (fall)   **Differential equations (teaching assistant)**, L2 Biology, Université Paris Diderot

2018–2019 (spring)   **Numerical analysis (teaching assistant)**, L2 Mathematics, Université Paris Diderot

2018–2019 (spring)   **Colloquia on calculus and linear algebra**, L1 and L2 Mathematics, Université Paris Diderot

2019–2020 (fall)   **Numerical analysis (teaching assistant)**, L2 Mathematics, Université Paris Diderot

2019–2020 (spring)   **Colloquia on calculus and linear algebra**, L1 and L2 Mathematics, Université Paris Diderot

2020–2021 (fall)   **Calculus and linear algebra**, L1 Chemistry, Université de Paris

2020–2021 (spring)   **Tutoring in analysis and linear algebra**, L1 Mathematics, Université de Paris

Reviewing

Referee for "Ricerche di Matematica"

Invited talks at seminars and conferences

June 2019	**ANR SHAPO meeting**, Montpellier, France
August 2019	**Workshop VIII PDE, optimal design and numerics**, Benasque, Spain
Nov. 2019	**Séminaire du GT Thésards du LJLL**, Sorbonne Université, Paris, France
Oct. 2019	**Poster at the conf. Shape Optim. (JOFA 4)**, l'École polytechnique
Nov. 2019	**Poster at the conf. Modélisation, Analyse et Simulation (LJLL50)**, Paris
Oct. 2020	**Video-talk at Seminar on Calculus of Variations (GT CalVa)**, Paris, France
June 2021	**Congress SMAI 2021**, la Grande-Motte, France
Sep. 2022	**Poster at Summer school on Analysis, Applied Math.**, Universität Münster
Nov. 2022	**UCLouvain Analysis seminar**, Louvain-la-Neuve, Belgium
April 2024	**Seminario di Analisi Matematica**, Università di Bologna, Italy
Nov. 2024	**Analysis Seminar**, Università di Pisa, Italy
Nov. 2024	**Séminaire EDP et Applications**, Institut Elie Cartan de Lorraine, Nancy, France
Dec. 2024	**Séminaire Analyse Harmonique**, Université Paris-Saclay, Orsay, France
April 2025	**Seminar on Calculus of Variations (GT CalVa)**, Université Paris Dauphine-PSL

Participation to Workshops, Schools and Courses

Dec. 2018	**Journées ANR SHAPO - Shape Optimization**, Grenoble, France
Feb. 2019	**Winter school on Calculus of Variations and Probability**, Toulouse, France
June 2019	**Journées ANR SHAPO - Shape Optimization**, Montpellier, France
June 2019	**Journée CalVa, conf. for the 50th anniversary of the LJLL**, Paris France
August 2019	**VIII PDE, optimal design and numerics**, Benasque, Spain
Oct. 2019	**Journées Optimisation de Formes et Applications**, Palaiseau, France
Nov. 2019	**Modeling, analysis and simulation, 50th anniversary of the LJLL**, Paris France
August 2020	**A Simons Collaboration on Localization of Waves Virtual Workshop**
June 2021	**Congress SMAI 2021**, la Grande-Motte, France
July 2022	**Calculus of Variations in Lille**, Lille France
Sept. 2022	**Summerschool on Analysis and Applied Mathematics**, Münster, Germany
Dec. 2022	**Calculus of Variations in Nancy**, Nancy, France
June 2023	**Calculus of Variations and Applications in Paris**, Paris, France
June 2023	**Geometrical trends in applied analysis**, Mulhouse, France
Dec. 2023	**Journée de Contact FNRS ULB-UCLouvain (Analysis and PDEs)**, Louvain-La-Neuve, Belgium
Nov. 2024	**Rencontre à Nancy sur le thème des Varifolds**, Nancy, France
Jan. 2025	**Winter School on Variational and PDE's Methods in Geometric Analysis**, Rome, Italy

Experience

Fall 2016	**Practical training on methods of calculation in Matlab**, 4 weeks, Taras Shevchenko National University of Kyiv
Spring 2018	**Internship at Université de Toulon, Laboratoire IMATH**

Fellowships

2013-2017	Taras Shevchenko National University of Kyiv Fellowship
2016-2017	Campus France Fellowship
2018	IMATH Laboratory Fellowship, Université de Toulon
2018-2021	Contrat doctoral, Université Paris-Diderot, Laboratoire Jacques-Louis Lions
2021-2024	Bourse UCLouvain: funding from Projet de Recherche T.0229.21 of FNRS
2024-2025	PRIN "Nodal Optimization, Nonlinear elliptic equations, Nonlocal geometric problems: focus on anisotropic variational problems and regularity"

Scientific visits

April 2024	Università di Bologna. Invited by Prof. Berardo Ruffini and Prof. Eleonora Cinti
Nov. 2024	Institut Elie Cartan de Lorraine. Invited by Prof. Antoine Lemenant

Languages

English	fluent
French	fluent
Italian	basic
Russian	mother tongue
Ukrainian	mother tongue

Computer skills

Matlab, Python	-good knowledge
C, C++	-good knowledge