

PERSONAL INFORMATION

Konstantinos Bessas

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Date of birth 9 March 1994 | Nationality Italian

ACADEMIC POSITIONS

Mar 2023 – Present

Postdoctoral Researcher (Assegnista di Ricerca) in Mathematics

Università di Pavia, Pavia (Italy)

Mentor: Professor Maria Giovanna Mora

EDUCATION AND TRAINING

Nov 2019 – May 2023

PhD in Mathematics

ISCED 8

Università di Pisa, Pisa (Italy)

Supervisor: Professor Matteo Novaga

Thesis title: “Nonlocal Models in Calculus of Variations”

PhD thesis defended on 02/05/2023

Dec 2016 – Apr 2019

Master of Science in Mathematics

ISCED 7

Università degli Studi di Parma, Parma (Italy)

Thesis supervisors: Professor Jan Kristensen, Professor Massimiliano Morini

Thesis title: “Oscillations and concentrations in sequences of gradients”

Grade: 110/110 cum laude

Sep 2013 – Dec 2016

Bachelor of Science in Mathematics

ISCED 6

Università degli Studi di Parma, Parma (Italy)

Thesis supervisor: Professor Massimiliano Morini

Thesis title: “The Mumford-Shah functional in one space dimension”

Grade: 110/110 cum laude

Sep 2008 – Jun 2013

School-leaving certificate

ISCED 3

Liceo Scientifico Giacomo Ulivi, Parma (Italy)

Grade: 100/100 cum laude

RESEARCH INTERESTS

- Calculus of Variations
- Nonlocal Interaction Problems
- Isoperimetric Problems
- Geometric PDEs
- Image Processing

SCHOLARSHIPS

Nov 2019 – Jan 2023

PhD scholarship at the Department of Mathematics of the University of Pisa

2013 – 2016

Winner of an INdAM scholarship covering the studies towards the Bachelor’s degree (Borsa di studio INdAM per l’iscrizione a corsi di Laurea in matematica)

GRANTS

Mar 2024 – Feb 2027

Young researchers grant 2023, 2023-0873, awarded by Fondazione Cariplo (200.000 €). Single PI.

VISITS (FUNDED)

- May 2022 – Jun 2022 Department for Applied Mathematics (University of Freiburg)
(Scientific collaboration with Professor Patrick Dondl)
- May 2018 – Jun 2018 Mathematical Institute (University of Oxford)
(Work under the supervision of Professor Jan Kristensen on my master thesis)
- Aug 2014 INdAM scholarship holders meeting (Università di Perugia)

INVITED TALKS

- 04/04/2025 *Regularity aspects of a class of nonlocal total variation-based image denoising models*
Mathematical Analysis Seminars
University of Florence
- 28/11/2024 *Isotropic and anisotropic nonlocal variational models*
Workshop on Geometric properties and regularity in variational problems
University of Pavia
- 16/09/2024 *On the Shape of Small Liquid Drops Minimizing Nonlocal Energies*
Elliptic and parabolic problems: analytic and geometric methods
University of Naples Parthenope
- 24/07/2024 *On the Shape of Small Liquid Drops Minimizing Nonlocal Energies*
2nd AMS-UMI International Joint Meeting
Special Session A9: Functional Inequalities and PDEs
University of Palermo
- 29/05/2024 *On the Shape of Small Liquid Drops Minimizing Nonlocal Energies*
Shape Optimization, Geometric Inequalities and Related Topics – II Edition
University of Salento
- 23/05/2024 *On the Shape of Small Liquid Drops Minimizing Nonlocal Energies*
International Conference on Elliptic and Parabolic Problems: GAETA 2024
Minisymposium MS-10: Regularity theory for variational problems
Hotel Serapo, Gaeta (Latina)
- 21/05/2024 *On the Shape of Small Liquid Drops Minimizing Nonlocal Energies*
Lions-Magenes days 2024
University of Pavia
- 20/10/2023 *On the Shape of Small Liquid Drops Minimizing Nonlocal Energies*
SHSU Analysis Seminar
Sam Houston State University, (online)
- 04/07/2023 *Long-range interactions in configurations of liquid droplets at equilibrium*
Seminari MAP: Metodi per l'Analisi e la Probabilità
University of Pisa
- 03/04/2023 *Nonlocal total variation denoising model with weighted L^1 fidelity*
Seminari di Matematica Applicata
University of Pavia
- 27/03/2023 *Nonlocal total variation denoising model with weighted L^1 fidelity*
Seminario di Analisi
University of Naples Federico II
- 25/11/2022 *Fractional total variation denoising model with L^1 fidelity*
Weekend di lavoro su Calcolo delle Variazioni
Grand Hotel Tettuccio, Montecatini Terme (Pistoia)

02/06/2022 *Fractional total variation denoising model with L^1 fidelity*
Oberseminar
 University of Freiburg

CONTRIBUTED TALKS

24/01/2024 *Dealing with a nonlocal world from a variational perspective*
Incontro Annuale dei Ricercatori in Matematica UNIPV
 University of Pavia

19/09/2023 *Non-local BV functions and a denoising model with L^1 fidelity*
Shape Optimization, Isoperimetric and Functional Inequalities
 Bellavista Relax Hotel, Levico Terme (Trento)

POSTERS

11/07/2023 *Fractional total variation denoising model with L^1 fidelity*
Hausdorff School: "Analysis of PDEs: Variational and Geometric Perspectives"
 Hausdorff Center for Mathematics, Bonn

04/10/2022 *Fractional total variation denoising model with L^1 fidelity*
Nonlocality: Analysis, Numerics and Applications
 Lorentz Center, Leiden

TEACHING

Sep 2021 – May 2022 Teaching assistant for the course "Analisi Matematica 1" (Calculus 1)
 (Università di Pisa, Bachelor's degree in Mathematics)

Sep 2020 – Jun 2021 Teaching assistant for the course "Analisi matematica 2" (Calculus 2)
 (Università di Pisa, Bachelor's degree in Mathematics)

ORGANIZATION

(5 - 6) 02/2025 Co-organizer of the workshop "Incontro Annuale dei Ricercatori in Matematica UNIPV"
 (in collaboration with Davide Duma, Monica Montardini and Michele Schiavina)

(24 - 25) 01/2024 Co-organizer of the workshop "Incontro Annuale dei Ricercatori in Matematica UNIPV"
 (in collaboration with Andrea Bondesan, Carlo Marcati, Silvia Paparini and Michele Schiavina)

Nov 2021 – Jan 2023 Co-organizer of the seminar series "Seminari MAP: Metodi per l'Analisi e la Probabilità"
 (in collaboration with Daniele Barbera, Luca Briani and Luciano Sciaraffia)

Mar 2021 – Nov 2021 Co-organizer of the seminar series "Seminari MAP: Metodi per l'Analisi e la Probabilità"
 (in collaboration with Luca Briani and Vincenzo Scattaglia)

SCIENTIFIC PROJECTS

Mar 2024 - Feb 2027 Single PI of the Fondazione Cariplo Project *Nonlocality in image denoising and other variational problems* (Young researchers grant 2023, 2023-0873)

2024 Participation to the INdAM GNAMPA Project *Proprietà geometriche e regolarità in problemi variazionali locali e non locali*

2023 Participation to the INdAM GNAMPA Project *Variational problems for non-local functionals and operators*

Mar 2023 - Aug 2023 Participation to the PRIN 2017 Project *Variational methods for stationary and evolution problems with singularities and interfaces*

2022 Participation to the INdAM GNAMPA Project *Nonlocal phenomena in local problems*

2020 Participation to the INdAM GNAMPA Project *Minimal clusters and minimal partitions*

CONFERENCES, WORKSHOPS,
SCHOOLS

- (10 - 14) 02/2025 XXXIV Convegno Nazionale di Calcolo delle Variazioni
Hotel Mediterraneo, Riccione
- (28 - 29) 11/2024 Workshop on Geometric properties and regularity in variational problems
University of Pavia
- (16 - 17) 09/2024 Elliptic and parabolic problems: analytic and geometric methods
University of Naples Parthenope
- (23 - 26) 07/2024 2nd AMS-UMI International Joint Meeting
University of Palermo
- (24 - 28) 06/2024 Vito Volterra Meeting 2024
Department of Mathematics, Sapienza University, Rome
- (27 - 29) 05/2024 Shape Optimization, Geometric Inequalities and Related Topics – II Edition
University of Salento
- (22 - 24) 05/2024 International Conference on Elliptic and Parabolic Problems: GAETA 2024
Hotel Serapo, Gaeta (Latina)
- 21/05/2024 Lions-Magenes days 2024
University of Pavia
- (12 - 16) 02/2024 XXXIII Convegno Nazionale di Calcolo delle Variazioni
Hotel Mediterraneo, Riccione
- (24 - 25) 01/2024 Incontro Annuale dei Ricercatori in Matematica UNIPV
University of Pavia
- 06/12/2023 Incontri di Analisi Matematica tra Firenze, Pisa e Siena
University of Florence
- 21/11/2023 Boundary value problems and applications – The legacy of Enrico Magenes
University of Pavia
- 26/10/2023 XI Giornata MI-PV
Department of Mathematics, Politecnico di Milano
- (18 - 22) 09/2023 Shape Optimization, Isoperimetric and Functional Inequalities
Bellavista Relax Hotel, Levico Terme (Trento)
- (17 - 21) 07/2023 Nonlinear PDEs: Recent Trends in the Analysis of Continuum Mechanics
Hausdorff Center for Mathematics, Bonn
- (10 - 14) 07/2023 Hausdorff School: "Analysis of PDEs: Variational and Geometric Perspectives"
Hausdorff Center for Mathematics, Bonn
- (12 - 16) 06/2023 Calculus of Variations & Geometric Measure Theory
Aula Magna - Polo Fibonacci (University of Pisa)
- (29/05 - 02/06) 2023 Geometric Measure Theory
La Casa della Gioventù universitaria, Bressanone (Bolzano)
- (25 - 27) 11/2022 Weekend di lavoro su Calcolo delle Variazioni
Grand Hotel Tettuccio, Montecatini Terme (Pistoia)
- (4 - 7) 10/2022 Nonlocality: Analysis, Numerics and Applications
Lorentz Center, Leiden
- (5 - 9) 09/2022 Anisotropic isoperimetric problems & related topics
Best Western Globus Hotel, Rome
- (20 - 24) 06/2022 Isoperimetric Problems
Department of Mathematics (University of Pisa)
- (23 - 25) 05/2022 Workshop on Nonlinear Bending
Department for Applied Mathematics (University of Freiburg)

- (9 - 13) 05/2022 XXXI Convegno Nazionale di Calcolo delle Variazioni
Bellavista Relax Hotel, Levico Terme (Trento)
- (21 - 25) 02/2022 Free Boundary Problems and related Evolution Equations
ESI Vienna (Online)
- (8 - 9) 11/2021 Ricordando Luciano Modica
Department of Mathematics (University of Pisa)
- (13 - 14) 10/2021 A Pisan workshop in Geometric Analysis
Centro di Ricerca Matematica Ennio De Giorgi (Pisa)
- (6 - 10) 09/2021 Variational methods and applications
Centro di Ricerca Matematica Ennio De Giorgi (Pisa)
- (21 - 25) 06/2021 Calculus of Variations and PDEs: recent developments and future directions
FIM - Institute for Mathematical Research (Online)
- (22 - 26) 02/2021 Winterschool on Analysis and Applied Mathematics
University of Münster (Online)
- (15 - 17) 12/2021 Online workshop in Geometric Analysis
University of Pisa & Scuola Normale Superiore di Pisa (Online)
- 30/10/2020 Incontri di Analisi Matematica tra Firenze, Pisa e Siena
University of Siena (Online)
- (3 - 7) 02/2020 XXX Convegno Nazionale di Calcolo delle Variazioni
Bellavista Relax Hotel, Levico Terme (Trento)
- (25 - 28) 11/2019 Recent trends in Geometric analysis and applications
Centro di Ricerca Matematica Ennio De Giorgi (Pisa)
- 22/11/2019 Incontri di Analisi Matematica tra Firenze, Pisa e Siena
Department of Mathematics (University of Pisa)
- (18 - 19) 06/2018 Women in PDEs
Mathematical Institute (University of Oxford)

PERSONAL SKILLS

Mother tongue Italian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B2	B2	B2	B2	B2
First Certificate in English (FCE) B2					

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user
[Common European Framework of Reference for Languages](#)

PUBLISHED PAPERS

- 2025** [3] **K. Bessas** and G. Stefani. **2025**. “Non-local BV functions and a denoising model with L^1 fidelity”. *Adv. Calc. Var.* 18.1, pp. 189–217. DOI: 10.1515/acv-2023-0082.
- 2023** [2] **K. Bessas**, M. Novaga, and F. Onoue. **2023**. “On the shape of small liquid drops minimizing nonlocal energies”. *ESAIM Control Optim. Calc. Var.* 29, Paper No. 86, 26. DOI: 10.1051/cocv/2023080.
- 2022** [1] **K. Bessas**. **2022**. “Fractional total variation denoising model with L^1 fidelity”. *Nonlinear Anal.* 222, Paper No. 112926. DOI: 10.1016/j.na.2022.112926.

PREPRINTS

- 2025** [P1] **K. Bessas** and G. C. Brusca. **2025**. *A note on non-local Sobolev spaces and non-local perimeters*. arXiv: 2504.06236 [math.FA].

PHD THESIS

2023 [T1] **K. Bessas. 2023.** "Nonlocal Models in Calculus of Variations". PhD thesis. Università di Pisa.
URL: <https://etd.adm.unipi.it/t/etd-04232023-211355/>.

REFERENCES

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