

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

- 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

- (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

- (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.

## 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

- Jan Kristensen [jan.kristensen@maths.ox.ac.uk](mailto:jan.kristensen@maths.ox.ac.uk)  
Mathematical Institute  
University of Oxford
- Maria Giovanna Mora [mariagiovanna.mora@unipv.it](mailto:mariagiovanna.mora@unipv.it)  
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