



Paolo Acampora

Postdoc at Università degli Studi di Napoli Federico II

📅 Last update: February 4, 2026

🌐 <https://p-acampora98.github.io/>

Born in Naples, 11/04/1998

*Interests – Shape optimization, free boundary problems,
calculus of variations, real analysis, isoperimetric inequalities*

🎓 Education

- 2021 – 2025 **Ph.D. in Mathematics**, *Università degli studi di Napoli Federico II*, Napoli, SUPERVISOR: Prof. Cristina Trombetti.
DATE OF DEFENSE: 21/01/2025
THESIS TITLE: Recent advances in geometric problems related to energy efficiency
- 2019 – 2021 **Master's degree in Mathematics**, *Università degli Studi di Napoli Federico II*, Napoli, Full mark with honors, SUPERVISOR: Cristina Trombetti.
DATE OF DEFENSE: 20/07/2021
THESIS TITLE: Isoperimetric inequalities for eigenvalues of the Robin-Laplacian
- 2016 – 2019 **Bachelor's degree in Mathematics**, *Università degli Studi di Napoli Federico II*, Napoli, Full mark with honors, SUPERVISOR: Cristina Trombetti.
DATE OF DEFENSE: 15/10/2019
THESIS TITLE: Sobolev spaces and applications

🔧 Skills

🗣 Languages

Italian, *native*.

English, *full professional proficiency*.

French, *limited professional proficiency*.

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Experience

Positions

2025 – Present **Postdoc**, *Università degli studi di Napoli Federico II*, Napoli, SUPERVISOR: Prof. Carlo Nitsch.

Funded with Fondi del Progetto SESG, Centro Nazionale "National Centre for HPC, Big Data and Quantum Computing" - CUP E63C22000980007. Scientific research activities, teaching assistance

Research activities

Jan 2024 – **Abroad research period**, *IMJ-PRG Sorbonne Université*, Paris, SUPERVISOR: Prof.

Apr 2024 Jimmy Lamboley.

Research about sharp quantitative Talenti inequality in some special cases

Teaching activities

2025 – Present **"Calculus 2" (48 hours) for Engineering students**, *Università degli studi di Napoli Federico II*, Naples.

Ownership of the course of Calculus 2 for students of "Ingegneria delle Telecomunicazioni e dei Media Digitali/Ingegneria Biomedica/Ingegneria Elettronica"

2023 – 2024 **Tutoring "Istituzioni di Analisi Superiore"**, *Università degli Studi di Napoli Federico II*, Napoli.

Tutoring activity (60 hours) for students of Master's degree in Mathematics. Theory and exercises about measure theory and complex analysis.

2022 – 2023 **Teaching assistance Calculus 1**, *Università degli Studi di Napoli Federico II*, Napoli.

Supplementary teaching (20 hours) for the course Calculus 1, for the Bachelor' degree in Mathematics, held by Prof. Cristina Trombetti. Theory and exercises.

2022 – 2023 **Tutoring Calculus 2**, *Università degli Studi di Napoli Federico II*, Napoli.

Tutoring activity (60 hours) for Calculus 2 students of Bachelor's degree in Mathematics. Theory and exercises.

2021 **Teaching assistance Calculus 2**, *Università degli Studi di Napoli Federico II*, Napoli.

Supplementary teaching (10 hours) for the course Calculus 2, for the Bachelor's degree in Physics, held by Prof. Francesco Chiacchio. Theory and exercises.

2020 – 2021 **Tutoring Calculus 1**, *Università degli Studi di Napoli Federico II*, Napoli.

Tutoring activity (50 hours) for Calculus 1 students of Bachelor's degree in Mathematics. Theory and exercises.

Editorial Activities

2025 **Referee**, *Arabian Journal of Mathematics*.

2025 **Referee**, *Journal of Optimization Theory and Applications*.

2025 **Referee**, *SIAM Journal on Control and Optimization*.

2025 **Referee**, *Journal of Mathematical Analysis and Applications*.

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Organizing activities

2024 – **Junior seminars in Mathematical Analysis**, *Università degli Studi di Napoli Federico II*, Napoli.
Series of seminars for PhD Students and post-doc speakers in mathematical analysis.

Research interests

My current research activity is focused on three main topics:

- Sharp quantitative estimates for symmetrization inequalities;
- Spectral inequalities for convex domains;
- Thermal insulation and approximation by Γ -convergence;
- Existence and regularity of solutions to free boundary problems governed by elliptic PDEs, with Dirichlet or Robin boundary condition.

Other fields of interests are the analysis of linear and nonlinear PDEs, spectral geometry and shape optimization problems.

Publications

Peer reviewed papers

- 2026 **J. Differential Equations**, **461 (2026)**, 114138, *P. Acampora, E. Cristoforoni, C. Nitsch, C. Trombetti*, An improved version of a spectral inequality by Payne, <https://doi.org/10.1016/j.jde.2026.114138>.
- 2026 **Commun. Contemp. Math.** **28, No. 01 (2026)**, 2550027, *P. Acampora, V. Amato, E. Cristoforoni*, Estimates on the Neumann and Steklov principal eigenvalues of collapsing domains, <https://doi.org/10.1142/S0219199725500270>.
- 2025 **Adv. Calc. Var.** **(2025)**, *P. Acampora, E. Cristoforoni*, On the asymptotic behavior of a diffraction problem with a thin layer, <https://doi.org/10.1515/acv-2024-0052>.
- 2025 **J. Geom. Anal.** **35 (2025)**, 183, *P. Acampora, A. Celentano, E. Cristoforoni, C. Nitsch, C. Trombetti*, A spectral isoperimetric inequality on the n -sphere for the Robin-Laplacian with negative boundary parameter, <https://doi.org/10.1007/s12220-025-02007-2>.
- 2024 **SIAM J. Math. Anal.** **56 (2024) no. 3**, pp. 3509-3536, *P. Acampora, E. Cristoforoni, C. Nitsch, C. Trombetti*, On the Optimal Shape of a Thin Insulating Layer, <https://doi.org/10.1142/S0219199725500270>.
- 2024 **Ann. Mat. Pura Appl.** **203**, 1–20 (2024), *P. Acampora, E. Cristoforoni*, A free boundary problem for the p -Laplacian with nonlinear boundary conditions, <https://doi.org/10.1007/s10231-023-01350-x>.
- 2023 **Atti Accad. Naz. Lincei Rend. Lincei Mat. Appl.** **34 (2023)**, no. 4, pp. 831–844, *P. Acampora, E. Cristoforoni*, An isoperimetric result for an energy related to the p -capacity, <https://doi.org/10.4171/rlm/1030>.
- 2023 **ESAIM Control Optim. Calc. Var.** **29 (2023) 3**, *P. Acampora, E. Cristoforoni, C. Nitsch, C. Trombetti*, A free boundary problem in thermal insulation with a prescribed heat source, <https://doi.org/10.1051/cocv/2022081>.

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Other publications

- 2025 **PhD Thesis – FedOA**, *P. Acampora*, Recent advances in geometric problems related to energy efficiency , <https://p-acampora98.github.io/phdThesisAcampora.pdf>.

Preprints

- 2025 **arXiv:2503.07337**, *P. Acampora, J. Lamboley*, Sharp quantitative Talenti's inequality in particular cases, <https://arxiv.org/abs/2503.07337>.

Scientific communications

Talks as invited speaker

- 04 Sep 2025 **Evolution Equations and Functional Analytical Methods for PDEs**, Parma, Sharp improvements for Talenti-type inequalities.
- 29 May 2025 **Matter of shapes**, Cortona, Asymptotically optimal geometric inequalities: known results and open problems .
- 2 Dec 2024 **Geometric Analysis and PDEs in Sorrento II** , Sorrento, Recent developments in quantitative rearrangement inequalities.
- 23 Jul 2024 **2nd International AMS-UMI Joint Meeting**, *Università degli Studi di Palermo*, Palermo, On the approximation of optimal thin layers in thermal insulation.
- 22 Apr 2024 **GT CalVa**, *Université Paris-Cité*, Paris, On the existence and approximation of optimal insulation layers.
- 16 Mar 2023 **Invited**, *Friedrich-Alexander-Universität Erlangen-Nürnberg*, Erlangen, Shape optimization problems in thermal insulation with thin insulating layers.
- 13 Jan 2023 **Invited**, *Università degli Studi di Napoli Federico II*, Napoli, On the optimal shape of a thin insulating layer.
- 20 Dec 2022 **PhD Day**, *Università degli Studi di Napoli Federico II*, Napoli, Free boundary problems: examples and tools.

Talks

- 18-23 Sep 2023 **Shape Optimization, Isoperimetric and Functional Inequalities**, *BellaVista Relax Hotel*, Levico Terme, Thin insulating layers: results and techniques.
- 13-17 Jun 2022 **Advances in Calculus of Variations**, *Università degli Studi di Napoli Parthenope*, Napoli, A free boundary problem for the p -Laplacian with nonlinear boundary conditions.

Poster Sessions

- 22-24 May 2023 **International Conference on Elliptic and Parabolic Problems**, *Accademia Pontaniana*, Napoli, Neumann and Steklov principal eigenvalues in collapsing domains.
- 04-08 Jul 2022 **Summer School in Analysis and PDEs**, *Università degli Studi della Campania Luigi Vanvitelli*, Caserta, A free boundary problem in thermal insulation with a prescribed heat source.

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Participation to research projects

- 2025 – **Analisi di Problemi Inversi nelle Equazioni alle Derivate Parziali**, *Istituto Nazionale di Alta Matematica (INDAM)*, Gruppo Nazionale per l'Analisi Matematica, la Probabilità e le loro Applicazioni (GNAMPA).
Present
- 2024 – 2025 **Modelli PDE-ODE nonlineari e proprieta' di PDE su domini standard e non-standard**, *Istituto Nazionale di Alta Matematica (INDAM)*, Gruppo Nazionale per l'Analisi Matematica, la Probabilità e le loro Applicazioni (GNAMPA).
- 2023 – 2024 **Symmetry and asymmetry in PDEs**, *Istituto Nazionale di Alta Matematica (INDAM)*, Gruppo Nazionale per l'Analisi Matematica, la Probabilità e le loro Applicazioni (GNAMPA).
- 2022 – 2023 **Optimal estimates for some shape functional**, *Istituto Nazionale di Alta Matematica (INDAM)*, Gruppo Nazionale per l'Analisi Matematica, la Probabilità e le loro Applicazioni (GNAMPA).