

Giovanni Gravina

Curriculum Vitae

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Academic Appointments

- Jul. 2021 - present **Temple University**, Philadelphia, PA. Research Assistant Professor.
Jun. 2019 - Jun. 2021 **Charles University**, Prague, Czech Republic. Postdoctoral Researcher.

Education

- Aug. 2013 - Apr. 2019 **Carnegie Mellon University**, Pittsburgh, PA.
Ph.D. in Mathematics.
Advisor: Giovanni Leoni.
Dissertation title: "Variational techniques for water waves and singular perturbations".
- Oct. 2011 - Jul. 2013 **Sapienza - Università di Roma**, Rome, Italy.
Master's degree in Mathematics. Final grade: 110/110 cum laude.
- Oct. 2008 - Jul. 2011 **Sapienza - Università di Roma**, Rome, Italy.
Bachelor's degree in Mathematics. Final grade: 110/110 cum laude.

Research interests

Partial differential equations, the calculus of variations, and the applications of these areas to problems that arise from materials science, continuum mechanics and fluid dynamics.

Publications

- [1] G. Gravina, G. Leoni.
Higher order Gamma-limits for singularly perturbed Dirichlet-Neumann problems.
SIAM J. Math. Anal., 51-4 (2019), 3337-3372.
- [2] G. Gravina, G. Leoni.
On the existence of non-flat profiles for a Bernoulli free boundary problem.
Adv. Calc. Var. 15 (2022), no. 1, 33-58.
- [3] G. Gravina, G. Leoni.
On the behavior of the free boundary for a one-phase Bernoulli problem with mixed boundary conditions.
Commun. Pure Appl. Anal. 19-10 (2020), 4853-4878.
- [4] R. Cristoferi, G. Gravina.
Sharp interface limit of a multi-phase transitions model under nonisothermal conditions.
Calc. Var. Partial Differential Equations, 60 (2021), no. 142.
- [5] R. Cristoferi, G. Gravina.
On the relaxation of functionals with contact terms on non-smooth domains.
Indiana Univ. Math. J. 72 (2023), no. 1, 197-238

- [6] G. Gravina, S. Schwarzacher, O. Souček, and K. Tůma.
Contactless rebound of elastic bodies in a viscous incompressible fluid.
J. Fluid Mech., 942 (2022), A34.
 - [7] A. Češík, G. Gravina, M. Kampschulte.
Inertial evolution of non-linear viscoelastic solids in the face of (self-)collision.
Submitted.
- Works in preparation**
- [8] G. Gravina, S. Schwarzacher.
Lack of collisions for deformable structures: the small deformations regime.
 - [9] Y. Grabovsky, G. Gravina.
Buckling of cylindrical shells with shape imperfections.
 - [10] A. Češík, G. Gravina, M. Kampschulte.
Self-contact for inertial problems on non-smooth domains.

Talks

- Mar. 2023 Math/Stat Colloquium, Loyola University Chicago
- Sep. 2022 Analysis Seminar, Temple University
- Jul. 2022 SIAM minisymposium on "Advances in Variational Methods and Applications to Materials and Machine Learning", SIAM Annual Meeting (AN22)
- Apr. 2022 Analysis and PDE Seminar, Worcester Polytechnic Institute
- Sep. 2021 Analysis Seminar, Temple University
- Jun. 2021 University Research Centers (UNCE) Seminar, Charles University
- Sep. 2020 ApplMath20: Tenth Conference on Applied Mathematics and Scientific Computing Brijuni, Croatia
- Jun. 2020 University Research Centers (UNCE) Seminar, Charles University
- Dec. 2019 University Research Centers (UNCE) Seminar, Charles University
- Nov. 2019 The Prague Seminar on Function Spaces, Charles University
- Jun. 2019 Leipzig-Prague Analysis Meeting, Labská Stráň, Czech Republic
- Mar. 2019 Geometric and Harmonic Analysis, University of Connecticut
- May 2018 Topics in the Calculus of Variations: Recent Advances and New Trends, BIRS, Banff, Canada

Awards

- Spring 2023 **Postdoctoral Fellow Teaching Award**
Presented by the Department of Mathematics at Temple University.
- Spring 2019 **Hugh D. Young Graduate Student Teaching Award**
"To encourage and recognize effective teaching by graduate students in the Mellon College of Science" - from the Hugh D. Young Award [website](#).
- Spring 2019 **Mellon College of Science Graduate Student Conference Funding Award**
- Spring 2013 **Percorso d'Eccellenza (Honors classes - Master's degree)**
Tuition fees reimbursement for the academic year 2012/2013, 10 positions available.
- Oct. 2009 - Jun. 2011 **Percorso d'Eccellenza (Honors classes - Bachelor's degree)**
Tuition fees reimbursement for the academic year 2010/2011, 30 positions available.

Invited visits

- Apr. 3 - Apr. 12, 2019 Charles University, Prague, Czech Republic

Teaching experience

Temple University

- Spring 2023 Instructor for Math 1042 Calculus II
- Fall 2022 Instructor for Math 2943 Honors Calculus III
- Spring 2022 Instructor for Math 2101 Linear Algebra
- Fall 2021 Instructor for Math 1941 Honors Calculus I

Carnegie Mellon University

- Spring 2019 Lead TA for 21-241 Matrices and Linear Transformations
- Fall 2017 Grader for 21-720 Measure and Integration
TA for 21-260 Differential Equations
- Fall 2016 TA for 21-112 Calculus II
- Fall 2015 TA for 21-241 Matrices and Linear Transformations
- Spring 2015 TA for 21-268 Multidimensional Calculus
- Fall 2014 TA for 21-259 Calculus in Three Dimensions
- Spring 2014 TA for 21-120 Differential and Integral Calculus
Grader for 21-356 Principles of Real Analysis II
- Fall 2013 Grader for 21-341 Linear Algebra I

Conferences, schools and workshops attended

- Jan. 2023 21st Annual Faculty Conference on Teaching Excellence
Temple University, Philadelphia, PA, United States
- Jul. 2022 SIAM Annual Meeting (AN22)
Pittsburgh, PA, United States
- Mar. 2022 SIAM Conference on Analysis of Partial Differential Equations (PD22)
Virtual Conference
- Jan. 2022 20th Annual Faculty Conference on Teaching Excellence
Temple University, Philadelphia, PA, United States
- Sep. 2020 ApplMath20: Tenth Conference on Applied Mathematics and Scientific Computing
Brijuni, Croatia
- Oct. 2019 Mathematics for Mechanics
Czech Academy of Sciences, Prague, Czech Republic
- Sep. 2019 Modeling and Analysis of Evolutionary Problems in Materials Science
Hausdorff Center for Mathematics, Bonn, Germany
- Jun. 2019 Leipzig-Prague Analysis Meeting,
Labská Stráž, Czech Republic
- Mar. 2019 Geometric and Harmonic Analysis
University of Connecticut, Storrs, CT, United States
- Mar. 2019 CNA Workshop on Mathematical Models for Pattern Formation
Carnegie Mellon University, Pittsburgh, PA, United States
- Jan. 2019 Joint Mathematics Meeting
Baltimore, MD, United States
- Nov. 2018 A Conference in Memory of Jim Greenberg
Carnegie Mellon University, Pittsburgh, PA, United States
- Sep. 2018 Meeting in Applied Mathematics and Calculus of Variations
Sapienza - Università di Roma, Rome, Italy

- May 2018 Topics in the Calculus of Variations: Recent Advances and New Trends
BIRS, Banff, Canada
- Jun. 2017 Ninth Summer School in Analysis and Applied Mathematics
Sapienza - Universita' di Roma, Rome, Italy
- May 2017 Nonconvexity, Nonlocality and Incompatibility: From Materials to Biology
Conference in honor of L. Truskinovky's 60th Birthday
University of Pittsburgh, Pittsburgh, PA, United States
- Jul. 2016 Topics in Applied Nonlinear Analysis: Recent Advances and New Trends
Conference in honor of D. Kinderlehrer's 75th Birthday
Carnegie Mellon University, Pittsburgh, PA, United States
- Jun. 2016 PIRE-CNA 2016 Summer School - New Frontiers in Nonlinear Analysis for Materials
Carnegie Mellon University, Pittsburgh, PA, United States
- Jun. 2015 Eight Summer School in Analysis and Applied Mathematics
Sapienza - Universita' di Roma, Rome, Italy

Languages

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| Italian | Native speaker |
| English | Fluent |
| Mandarin | Basic |

Academic service

- Mar. 2022 Co-organizer of the minisymposium "*Free Boundaries in Fluids and Fluid-Structure Interactions*" at the SIAM Conference on Analysis of Partial Differential Equations (PD22)
- Aug. 2018 - May 2019 Member of the Mellon College of Science Graduate Student Advisory Council
- Jan. 2017 - Jan. 2019 Member of the Graduate Student Assembly Finance Committee
- Jan. 2017 - Aug. 2018 Graduate Student Assembly representative

Referee Activity

Nonlinearity, SIMA