

Giovanni Gravina

Curriculum Vitae

Department of Mathematics and Statistics
Loyola University Chicago
BVM Hall, 6349 N. Kenmore Avenue
Chicago, IL 60660
☎ 215-398-8604
✉ ggravina@luc.edu

Academic Appointments

- Aug. 2024 - present **Loyola University Chicago**, Chicago, IL. Assistant Professor.
Aug. 2023 - May 2024 **Arizona State University**, Tempe, AZ. Postdoctoral Associate.
Jul. 2021 - Jun. 2023 **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.
Calc. Var. Partial Differential Equations, 63 (2024), no. 55.
- [8] A. Češík, G. Gravina, M. Kampschulte.
Inertial (self-)collisions of viscoelastic solids with Lipschitz boundaries.
Submitted.

Works in preparation

- [9] G. Gravina, S. Schwarzacher.
Lack of collisions for deformable structures: the small deformations regime.
- [10] Y. Grabovsky, G. Gravina.
Buckling of cylindrical shells with shape imperfections.
- [11] D. Danielli, G. Gravina
Thin obstacle-type problems for the bilaplacian.

Talks

- Sep. 2024 Differential Equations/Nonlinear Analysis Seminar, North Carolina State University
- Aug. 2024 International Conference on Free Boundary Problems: Theory and Application. Special Session on “Lower Dimensional Free Boundary Problems”
- Jul. 2024 AMS-UMI International Joint Meeting. Special Session on “Advances in Variational Methods and Applications”
- May 2024 SIAM minisymposium on “Advances in Variational Methods and Applications to Materials”, SIAM Conference on Materials Science (MS24)
- Oct. 2023 Postdoc Seminar Series, Arizona State University
- Oct. 2023 SIAM minisymposium on “Nonlinear Evolution Equations and Related Topics”, SIAM Central States Section (SIAM-CSS)
- Sep. 2023 PDE Seminar, Arizona State University
- 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

Loyola University Chicago

- Fall 2024 Instructor for MATH 264 Ordinary Differential Equations
Instructor for MATH 131 Applied Calculus I

Arizona State University

- Spring 2024 Instructor for MAT 342 Linear Algebra
Fall 2023 Instructor for MAT 275 Modern Differential Equations

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

- Aug. 2024 International Conference on Free Boundary Problems: Theory and Application
João Pessoa City, Brazil
- Jul. 2024 AMS-UMI International Joint Meeting
Universita' degli Studi di Palermo, Palermo, Italy

- May 2024 SIAM Conference on Materials Science (MS24)
Pittsburgh, PA, United States
- Oct. 2023 The 8th Annual Meeting of SIAM Central States Section (SIAM-CSS)
University of Nebraska-Lincoln, Lincoln, NE, United States
- 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 - Università 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 - Università di Roma, Rome, Italy

Languages

Italian Native speaker

English Fluent
Mandarin Basic

Academic service

- Aug. 2023 - May 2024 Co-organizer of the PDE Seminar at Arizona State University
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, Glasnik Matematicki, J. London Math. Soc.