

Carnegie Mellon University
Dept. of Math. Sciences,
Wean Hall #6113,
Pittsburgh, PA 15213

☎ 412 268 3615

✉ fonseca@andrew.cmu.edu

www.math.cmu.edu/~fonseca

Irene Maria Quintanilha Coelho da Fonseca

Kavčič-Moura University Professor of Mathematics

Irene Fonseca's work combines teaching, research and training in nonlinear analysis.

Since 1998 Irene Fonseca is the Director of the Center for Nonlinear Analysis in the Department of Mathematical Sciences, which primary focus is research and training in applied mathematics at the broad interface between mathematics, the physical sciences and engineering. Fonseca's research program includes the mathematical study of shape memory alloys, ferroelectric, magnetic materials, composites, thin structures, phase transitions, and the mathematical analysis of image segmentation, denoising, detexturing and recolorization in computer vision.

EDUCATION:

- 1985 Doctor of Philosophy, University of Minnesota, Minneapolis
- 1983 Master of Science, University of Minnesota, Minneapolis
- 1980 Licenciatura in Mathematics, University of Lisbon
- 1973 High school studies, Lisbon

LANGUAGES SPOKEN FLUENTLY:

English, French, Portuguese.

HONOURS AND AWARDS:

- 2026 Elected Fellow of the American Association of the Advancement of Science (AAAS)
- 2026 Awarded the Prémio Universidade de Lisboa / Caixa Geral de Depósitos, Portugal
- 2025 Lecturer of the Ziwet lectures at the University of Michigan
- 2024 Recognized in Forbes Portugal's 2024 list of the Most Powerful Women in Business, in the Education and Science category
- 2023 Elected VP of the American Mathematical Society
- 2022 ICM 2022, July 6-14, 2022. Invited Lecture
- 2022 ISIMM Senior Prize 2022, Brescia (Italy), June 2022
- 2021 Fellow of the European Academy of Sciences
- 2019 Turner Kirk Distinguished Visiting Fellow, Isaac Newton Institute for Mathematical Sciences, Cambridge (UK)
- 2018 Elected to the Academia de Ciências de Lisboa (Portugal)
- 2018-2028 Kavčič-Moura Professorship in Mathematics (Chair)
- 2015-2025 Conselheira de Portugal no Mundo, Conselho da Diáspora Portuguesa
- 2014 University Professor, Carnegie Mellon University
- 2012 Doutor Honoris Causa, Universidade Nova de Lisboa (Portugal)
- 2012 Seeds of Science Prize, Ciência Hoje, Portugal
- 2012 Fellow of the American Mathematical Society
- 2012 SIAM (Society for Industrial and Applied Mathematics) President Elect 2012, SIAM President 2013, 2014, SIAM Past President 2015

- 2011 Congratulatory vote, unanimously approved by the Portuguese Parliament in plenary session.
- 2009 Best Paper Award 2009, Institute of Information Theory and Automation, Academy of Sciences of the Czech Republic: *Oscillations and Concentrations Generated By \mathcal{A} -Free Mappings and Weak Lower Semicontinuity of Integral Functionals* ESAIM:COCV, Published online April 21, 2009
- 2009 Fellow of the Society for Industrial and Applied Mathematics
- 2006 AWM-SIAM Sonia Kovalevsky Lecturer for 2006, SIAM Annual Meeting, Boston
- 2004 Women of Distinction Award in Math and Technology
- 2003-2018 Mellon College of Science Professor of Mathematics (Chair)
 - 1997 Grand Officer of the Military Order of Saint James of the Sword, Grande Oficial da Ordem Militar de Sant'Iago da Espada (Portuguese Decoration)
- 1981-1985 Calouste Gulbenkian Fellowship
- 1981-1985 Fulbright Fellowship

ACADEMIC POSITIONS:

- 2018-2028 Kavčić-Moura University Professor of Mathematics
- 2014–present University Professor of Mathematics
 - 2003–2018 Mellon College of Science Professor of Mathematics (Chair)
- 1998–present Director of the Center for Nonlinear Analysis (CNA), Department of Mathematical Sciences, Carnegie Mellon University
- 1993–present Professor of Mathematics, Carnegie Mellon University
 - 1992–93 Associate Professor with Tenure, Carnegie Mellon University
 - 1989–92 Assistant Professor, Carnegie Mellon University
 - 1987–89 Visiting Assistant Professor, Carnegie Mellon University
 - 1986–87 Postdoctoral fellow at the Centre de Mathématiques Appliquées, Ecole Polytechnique, Palaiseau, France
 - 1986–87 Assistant Professor on leave from the University of Lisbon
 - 1985–86 Assistant Professor at the University of Lisbon
 - 1981–85 Teaching Assistant at the University of Minnesota
 - 1980–81 Teaching Assistant at the University of Lisbon

PROFESSIONAL SOCIETIES:

- American Association for the Advancement of Science (AAAS)
- American Mathematical Society (AMS), Fellow
- Association for Women in Mathematics (AWM)
- European Academy of Sciences (EURASC), Fellow
- European Mathematical Society (EMS)
- International Society for the Interaction of Mechanics and Mathematics (ISIMM)
- Society for Industrial and Applied Mathematics (SIAM), Fellow
- Sociedade Portuguesa de Matemática
- Society for Natural Philosophy

EDITORIAL BOARDS:

- Acta Applicandae Mathematica, Springer, Editor-in-Chief
- Advances in Calculus of Variations, de Gruyter

- Advances in Discrete and Continuous Models, Springer
 Archive for Rational Mechanics and Analysis, Springer
- 2012-2022 BCAM-Springer Briefs
 CIM Series in Mathematical Sciences (CIM-MS), Springer, Series Editor
- 2020-2029 CAMS, Communications of the AMS, Senior Editor
 Communications on Pure and Applied Analysis, AIMS
 De Gruyter Series in Applied and Numerical Mathematics
- 1999-2027 ESAIM: COCV (European Series in Pure and Applied Mathematics, Control, Optimization and Calculus of Variations), SMAI
 Episciences, Applied Mathematics and Computer Science Steering Committee
 Evolution Equations and Control Theory (EECT), AIMS (American Institute of Mathematics and Sciences)
 Infosys Science Foundation Series in Mathematical Sciences, Book Series, Springer, Editor-in-Chief
 Journal of Nonlinear Science, Springer, Senior Editor
- 2013-2018 Le Journal de l'Ecole Polytechnique
 Mathematical Association of America (MAA)
 M³AS, Mathematical Models and Methods in Applied Sciences
 Monography Series of the SPM
 Numerical Functional Analysis and Optimization
 Portugaliae Mathematica, EMS-Press
 Ricerche di Matematica, Springer
- 2018-2026 SIAM Classics in Applied Mathematics
 SIAM Journal on Mathematical Analysis
- 2011-2016 SIAM Review (SIREV, Survey and Review Section)
 SpringerBriefs on PDE and Data Science, Series Editor

COMMITTEES AND PANELS EXTERNAL TO CMU:

- 2022-2029 AMS Editorial Boards Committee
- 2016-2029 Scientific Advisory Board (Comissão de Acompanhamento), Centro de Matemática, Aplicações Fundamentais e Investigação Operacional (CMAF-CIO), University of Lisbon (Portugal)
- 2025-2028 Member of the US National Committee on Theoretical and Applied Mechanics, AMS representative
- 2021-2028 European Mathematical Society (EMS) Meetings Committee
- 2025-2027 AWM-SIAM Sonia Kovalevsky Lecture Selection Committee
- 2024-2027 AMS Vice-President
- 2024-2027 AMS Council Representative on the Committee on Science Policy
- 2023- Board of Teachers of the PhD programme in Mathematical Sciences, Politecnico di Torino, Italy
- 2023-2027 Executive Committee of Americas DENA (Differential Equations and Nonlinear Analysis)
- 2023-2027 Dipartimenti di Eccellenza, University of Pisa (Italy), Advisory Board
- 2020-2027 CAP (Committee for Appointments and Promotions) of Bocconi University's Department of Decision Science, Milan (Italy)
- 2026 Member of the External Review Panel for the Department of Mathematics at UBC, Vancouver (Canada)
- 2025-2026 Jury for the Austrian Science Fund's (FWF) ASTRA and Wittgenstein Awards
- 2023-2026 Faculdade de Ciências da Universidade de Lisboa (Portugal), Scientific Advisory Board

2023– Board of Teachers of the PhD Program in Mathematical Science , Politecnico de Torino, Italy

2023-2026 AMS-SIAM Cathleen Synge Morawetz Prize Selection Committee

2023-2026 AMS-SIAM Committee to Select the Winner of the 2024 Birkhoff Prize, Chair

2022-2026 Scientific Advisory Panel (SAP) of the Fields Institute, Toronto (Canada)

2022-2026 IMU-ICM (International Congress of Mathematicians) 2026, Executive Committee

2022-2026 Mathematical Sciences Research Institute (SLMSI/MSRI), Scientific Advisory Committee

2019-2026 IMU Structure Committee, International Mathematical Union

2025 Austrian Science Fund, International Jury

2025 Academic Program Review (APR) External Review Team (ERT) for the Mathematics Program, Texas A&M University

2025 Reviewer/Panelist of proposals for Clusters of Excellence (Excellence Strategy), DFG (Germany), February 2025

2024-2025 SIAM 2025 Jerald L. Ericksen Prize Selection Committee, Chair

2023-2025 Professors Council of the PhD program in Mathematical Sciences at Politecnico di Torino, Italy

2023-2025 SIMA-SIAG/APDE Webinar Organizing Committee

2019-2025 AMS Prize Oversight Committee

2008-2025 SIAM Committee on Science Policy

2008-2025 SIAM Fellows Selection Committee

2024 Co-Chair of Committee of Visitors, Division of Mathematical Sciences, NSF, Fall 2024

2024 External Review Committee of the Department of Applied and Computational Mathematics and Statistics, Chair, University of Notre Dame, November 2024

2023-2024 Full Professor Selection Committee, Instituto Superior Técnico (Portugal)

2022-2024 SIAM Activity Group on Mathematical Aspects of Materials Science, Chair

2021-2024 Conselho Geral da Universidade de Coimbra (Portugal)

2021-2024 AMS Bôcher Memorial Prize Selection Committee

2016-2024 Scientific Advisory Board, Faculty of Mathematics, University of Vienna (Austria)

2022-2023 Visiting Committee to the Department of Mathematics of the Instituto Superior Técnico (Portugal), Chair

2022-2023 Committee for the Selection of Full Professors, Department of Mathematics of the Instituto Superior Técnico (Portugal)

2021-2023 2023 ICIAM Industry Prize Committee

2020-2023 Variational Methods for Predicting Complex Phenomena in Engineering Structures and Materials, DFG Review Panel (Germany)

2020-2023 Governing Member of the Arrangements Committee of the Society for Natural Philosophy

2016-2023 AWM (Association for Women in Mathematics) Scientific Advisory Committee. Chair in 2021.

2014-2023 IMA Board of Governors. Chair in 2019

2014-2023 AAAS, Member-at-Large of the Section of Mathematics

2014-2023 Scientific Advisory Board of the Interdisciplinary Center for Scientific Computing (IWR), Heidelberg (Germany)

2022 External Evaluator, Department of Mathematics and Department of Statistics, University of Pittsburgh

2016-2022 Scientific Advisory Board (Comissão de Acompanhamento), Centre for Mathematics of the University of Coimbra (CMUC), Portugal

2021 AWM Scientific Advisory Committee, Chair

- 2021 Recruitment Committee for the position of Division Director for the NSF Division of Mathematical Sciences
- 2021 Simons Investigators in Mathematics Review
- 2020 Review of the Department of Mathematics at George Washington University
- 2020 External Review Committee of the Department of Mathematics at the UC Santa Barbara
- 2019-2020 Study Committee for Illustrating the Impact of the Mathematical Sciences, National Academies of Sciences, Engineering, and Medicine
- 2019-2020 SIAM Ad Hoc Committee on the Joint Mathematics Meetings (JMM)
- 2019-2020 SIAM SIAG/APDE, Chair
- 2018-2020 Committee on Understanding and Addressing the Underrepresentation of Women in Particular Science and Engineering Disciplines, National Academies of Sciences, Engineering, and Medicine
- 2017-2020 Alan T. Waterman (ATW) Award Committee, NSF
- 2017-2020 AMS Fellows Selection Committee
- 2017-2020 Mathematics Research Communities Advisory Board, AMS
 - 2019 Review of the University of Minnesota Mathematics Program, Chair
- 2018-2019 Selection Committee, Simons Foundation –Simons Investigators in Mathematics, Physics, Astrophysics, Theoretical Computer Science, and Mathematical Modeling of Living Systems (MMLS)
- 2018-2019 Founding Committee of the Research Institute for Mathematics (RIM), Milan (Italy)
- 2017-2019 Abel Prize Committee
- 2017-2019 Board of Electors to Professorships, University of Cambridge (UK)
- 2017-2019 Scientific Advisory Board (SAB) of the Max Planck Institute for Mathematics in the Sciences, Leipzig (Germany), Chair
- 2016-2019 AMS Short Course Subcommittee
- 2016-2018 2018 ICM Emmy Noether Lecture Committee, Chair
- 2016-2018 National Advisory Committee (NAC) for the Statistical and Applied Mathematical Sciences Institute (SAMSI)
- 2016-2017 Comissão de Visita de Apreciação das Atividades de Investigação e Ensino do Departamento de Matemática, Instituto Superior Técnico, Portugal
- 2014-2017 Juror for the Infosys Prize in Mathematical Sciences, Infosys Foundation, India
- 2014-2017 Advisory Committee of the Centrality of Digitally-Enabled Science (CADENS), National Center for Supercomputing Applications (NCSA)
 - 2016 Review panel of the Mathematical Institute, University of Oxford (UK)
 - 2016 Evaluation panel of the Faculty of Mathematics at the University of Vienna, Chair
 - 2016 Nominating Committee, SIAM Activity Group on Mathematical Aspects of Materials Science (SIAG/MS)
 - 2016 Ten-Year Review Committee of the Department of Mathematics, University of Washington
- 2014-2016 National Center for Supercomputing Applications (NCSA), University of Illinois, Advisory Committee
- 2014-2015 External Review Committee of the Center for Scientific Computation and Mathematical Modeling (CSCAMM) at the University of Maryland
- 2013-2015 International Advisory Panel of the Skolkovo Institute of Science and Technology
- 2012-2015 Scientific Council of IMDEA (Institutos Madrileños de Estudios Avanzados-Madrid Institute of Advanced Studies) <http://www.imdea.org>
 - Fall 2013 Mathematics Department at the University of Texas at Austin, External Review Committee, Fall 2013
- 2012-2013 Chair of the Search Committee for Division Director of DMS at the NSF

- Fall 2012 Member of the review panel for the Collaborative Research Center on “Mathematics of Emergent Effects”, U. Bonn (Germany)
- 2011 Skoltech International Advisory Committee, Skoltech, Skolkovo Institute of Science and Technology, Moscow, Russia
- 2011 Conselho para a Ciência e Tecnologia, Fundação Francisco Manuel dos Santos (FFMS)
- 2011-2016 Member of the Scientific Advisory Board of the Max Planck Institute for Mathematics in the Sciences in Leipzig, Germany
- 2010-2012 Member of the NSF Facilities Committee
- 2010-2012 Member of the NSF International Materials Institute for Solar Energy and Environment (IMI-SEE)
- 2010-2012 SIAM Council
- 2009-2011 Member of the NSF MPS Energy Working Group
International Scientific Advisory Committee of the Centre of Excellence in Mathematics, Mahidol University, Thailand
- 2009-2010 Search Committee for the Director of the NSF Division of Mathematical Sciences
- 2009 SIAM Fellows Selection Committee
- 2009-2011 AMS Nominating Committee
- 2008-2013 Appointed by the Portuguese Council of Ministers to the Board of Trustees of the Portuguese National Agency for the Evaluation and Accreditation of Higher Education in Portugal
- 2008-2011, 2012-2015 NSF Mathematics and Physical Sciences Directorate Advisory Committee (MPSAC)
- 2008-2010 SIAG (SIAM Activity Group) on “Mathematical Aspects of Materials Science” (SIAM), Vice-Chair
2008 External Review Committee, Purdue University
- 2007-2010 Interdisciplinary Adjudication Committee, Canada Research Chairs Program
- 2006-2009 Representative to AMS-IMS-SIAM Evaluation Panel for the NSF Mathematical Sciences Postdoctoral Research Fellowships
- 2006 External reviewer of the Department of Mathematics at Simon Fraser University
- 2005-present President of the Scientific Committee of CIM (Centro Internacional de Matemática)
Site Visit Committee for the Banff International Research Station (BIRS)
President of the FIIP (Forum Internacional de Investigadores Portugueses)
Advisory Board of the University of Trento (Italy)
Advisory Board of EPFL, Lausanne, Switzerland
NSF (National Science Foundation) Panels of evaluation of research proposals in the area of Applied Mathematics, NSF Panels of evaluation of research proposals in the area of mechanics, NSF Panels of evaluation of FRG proposals (Focus Research Groups), NSF Advisory Panels, NSF Panels of evaluation of institutes and RTGs
FCT (Fundação para a Ciência e Tecnologia, the Portuguese NSF) Coordinator of the evaluation of all Portuguese research centers, institutes, group and individual research proposals in the area of Mathematics since 1994
Evaluation Panels for the Italian MURST

COMMITTEES AND OTHER SERVICE AT CMU:

- 2023-2024 Search Committee for Tenure Track Positions in Computational and Applied Mathematics
- 2022-2023 Search Committee for Tenure Track Positions in Computational Mathematics
- 2022-2023 Search Committee for Tenure Track Positions in Partial Differential Equations
- 2022-2024 Chair of the MCS Faculty

2020-2021 University Professors Ad-Hoc Subcommittee
 2019-2020 Department Head Search Committee, Department of Mathematical Sciences
 2019-2020 Search Committee, Tenure Track in Mathematical Finance
 2019-2021 Selection Committee for the 2020 and 2021 CMU Honorary Degrees
 2017-2018 Presidential Search Committee
 2016-2017 Search Committee for Tenure Track Positions in Computational Mathematics, Chair
 2017 Department of Mathematical Sciences Plan/Planning Committee
 2017 Presidential Review Committee
 2016-2017 Search Committee for Tenure Track Positions in Mathematics of Finance
 2015-present Department of Mathematical Sciences Executive Committee
 2015-2016 Search Committee for Tenure Track Positions in Probability
 2015-2016 MCS Dean Search Committee (Co-Chair)
 2014-2015 University Strategic Planning: Committee on Research, Creativity, Innovation and Entrepreneurship,
 International Strategig Planning Working Group
 2014-2015 Search Advisory Committee for CMU's Provost
 2014-2017 CMU Budget and Financial Affairs Committee
 2013-2015 CMU Research Review Committee
 2012-2013 CMU President Search Committee
 2011-2012 Department Head Search Committee (Chair)
 2007-2009 University International Strategic Planning Committee
 2007-2009 University Research Strategic Planning Committee
 2007-2008 Advisory Board Preparatory Committee
 2007-2008 MCS Dean Search Committee
 2001-2003 Committee to Revise the Department of Mathematical Sciences Strategic Plan
 2001-02 Mellon College of Science Faculty Organization (Chair)
 2000-present CMU International Committee
 2000-01 Mellon College of Science Dean Search Committee
 1999-present Search Committee (Chair, Tenure Track Applied Analysis)
 Department Head Search Committees (Physics and Mathematical Sciences), 1998-1999, 2000-01,
 2002-03, 2011-2012 (Chair)
 1992-2000 Mellon College of Science Planning Committee
 1998-2000 CMU Advisory Committee for Technology
 1997-present Department Head Advisory Committee
 1994-1997 Mellon College of Science Associate Dean for Faculty and Graduate Affairs

GRADUATE STUDENTS:

Francesco Cassandra 2021-present, co-supervised with Giovanni Leoni.

Giuseppe Brusca, Fall 2025, Ph.D. Student visiting from U. Trieste (Italy), so-supervised with Giovanni Leoni.

Francesco Colasanto, Spring 2025, Ph.D. Student visiting from U. Florence (Italy), so-supervised with Giovanni Leoni.

Pascal Steinke, Spring 2025, Ph.D. Student visiting from U. Bonn (Germany), so-supervised with Giovanni Leoni.

Ph.D. 2025 Wesley Caldwell, co-supervised with Giovanni Leoni. Postdoc at NIST.

- Ph.D. 2022 Likhith Ganedi, Postdoc at U. Utah.
- Ph.D. 2021 Kerrek Stinson, co-supervised with Giovanni Leoni. Postdoc at U. Utah.
- Ph.D. 2019 Adrian Hagerty, Edge Case Research, Machine Learning Engineer.
- Ph.D. 2017 Pan Liu, Department of Radiology, First Medical Center of Chinese People's Liberation Army General Hospital, Beijing (China).
- Ph.D. 2017 Matteo Rinaldi, co-supervised with Giovanni Leoni. Machine Learning Engineering manager at Spotify.
- Ph.D. 2015 Laura Bufford, Squarespace.
- Ph.D. 2012 Paolo Piovano, co-supervised with Giovanni Leoni. Politecnico di Milano (Italy).
- PhD 2011 Rita Ferreira, graduate student in the ICTI CMU-Portugal program in Applied Mathematics, co-supervised with Luisa Mascarenhas. KAUST (Saudi Arabia).
- Ph.D. 2008 Bernardo Sousa, co-supervised with Giovanni Leoni. University of Toronto, Toronto (Canada).
- Ph.D. 2007 Graça Carita, co-supervised with Giovanni Leoni. University of Évora (Portugal). Deceased.
- Ph.D. 2005 Margarida Baia, Instituto Superior Técnico, Lisbon (Portugal).
- Ph.D. 2004 Cristina Popovici, George Mason University.
- PhD 2004 Marian Bocea, National Science Foundation.
- Ph.D. 2003 Pedro Santos, Instituto Superior Técnico, Lisbon (Portugal).
- Ph.D. 1996 Christopher Larsen, Worcester Polytechnic Institute.
- Ph.D. 1994 Ana Cristina Barroso, University of Lisbon, Lisbon (Portugal).

MENTOR OF POSTDOCTORAL FELLOWS:

- 2025-present Anton Ullrich, co-mentored with Giovanni Leoni.
- 2025-present Michael Rozowski, co-mentored with Giovanni Leoni.
- 2023-2024 Michael Novack, co-mentored with Giovanni Leoni. Illinois Tech.
- 2022-2023 Leonard Kreutz, co-mentored with Giovanni Leoni. TU München (Germany).
- 2019-2021 Sean McCurdy, co-mentored with Giovanni Leoni. National Taiwan Normal University, Taipei (Taiwan).
- 2019-2021 Adam Prosinisky, co-mentored with Giovanni Leoni. Citadel Securities (UK)
- 2018-2021 Raghavendra (Raghav) Venkatraman. U. Utah.
- 2017-2019 Stephan Wojtowycsch, co-mentored with Giovanni Leoni. U. Pittsburgh.
- 2017-2019 Ethan O'Brien, co-mentored with Giovanni Leoni. University of Arizona.
- 2015-2018 Riccardo Cristoferi, Radboud University (The Netherlands).
- 2016-2018 Janusz Ginster, PIRE postdoc, co-mentored with Giovanni Leoni. Technische Universität Berlin (Germany).
- 2015-2018 Lei Wu, PIRE postdoc, co-mentored with Giovanni Leoni and Ian Tice. Lehigh U.
- 2016-2017 Peter Gladbach, co-mentored with Giovanni Leoni. University of Bonn (Germany).
- 2015-2017 Laurent Dietrich, PIRE postdoc, co-mentored with Giovanni Leoni and David Kinderlehrer. Lycée Fabert, Metz (France).
- 2015-2017 Marco Caroccia, CMU|Portugal postdoc, co-mentored with Giovanni Leoni. Politecnico di Milano (Italy).
- 2014-2016 Emanuel Indrei, co-mentored with Giovanni Leoni. Kennesaw State U.
- 2014-2015 Xin Yang Lu, co-mentored with Giovanni Leoni and Dejan Slepčev. Lakehead University (Canada).
- 2012-2015 Elisa Davoli, TU Wien (Austria).
- 2011-2014 Timothy Blass, co-mentored with Giovanni Leoni and David Kinderlehrer. Director of Data Science at Trilliant Health.

- 2011-2014 Gurchen Hayrapetyan, co-mentored with Giovanni Leoni. Mercedes Benz Research and Development, Columbia SPS.
- 2011-2014 Marco Morandotti, co-mentored with Giovanni Leoni. Politecnico di Torino (Italy).
- 2011 Michael Goldman, co-mentored with Giovanni Leoni. CNRS researcher at Paris VI (France).
- 2010-2012 Barbara Zwicknagl, Technische Universität Berlin (Germany).
- 2010-2012 Carolin Kreisbeck, Katholische Universität, Eichstätt-Ingolstadt (Germany).
- 2009 Milena Chermisi, Industrial position in Milan (Italy).
- 2008-2010 Stefan Krömer, Academy of Sciences, Prague (Czech Republic).
- 2007-2009 Filippo Cagnetti, co-mentored with Giovanni Leoni . University of Sussex (UK).
- 2007-2009 Marco Barchiesi, co-mentored with Giovanni Leoni . University of Naples (Italy).
- Ana Margarida Ribeiro, CMU|Portugal Program in Applied Mathematics, University Nova (Portugal).
- Vincent Millot, co-mentored with Giovanni Leoni . University Paris VI (France).
- Valeriy Slastikov, co-mentored with Giovanni Leoni . University of Bristol (UK).
- Massimiliano Morini, co-mentored with Giovanni Leoni . University of Parma (Italy).
- Marc-Oliver Rieger, co-mentored with Giovanni Leoni . University of Zürich (Germany).
- Roberto Alicandro. University of Cassino (Italy).
- Chiara Leone. University of Naples (Italy).
- Fabio Bagagiolo. University of Trento (Italy).
- Roberto Paroni. University of Sassari (Italy).
- Misha Shvartsman. St. Thomas College, Minnesota.
- Rustum Choksi. McGill University (Montreal, Canada).
- Georg Dolzmann. Regensburg University (Germany).
- Giovanni Leoni. Carnegie Mellon University.
- Konstantina Trivisa. University of Maryland.
- Markos Katsoulakis. University of Massachusetts.
- Wilfrid Gangbo. UCLA.
- Piotr Rybka. Warsaw University (Poland).
- Stefan Müller. University of Bonn (Germany).

BOOKS AND LECTURE NOTES:

1. I. Fonseca and G. Leoni, *Modern Methods in the Calculus of Variations: $W^{1,p}$ spaces*. In preparation. To be published by Springer-Verlag.
2. I. Fonseca and G. Leoni, chapter on Calculus of Variations in the book *Princeton Companion to Applied Mathematics*, to appear.
3. I. Fonseca and G. Leoni, *Modern Methods in the Calculus of Variations: L^p Spaces*. Springer-Verlag, 2007.
4. 2001 CNA Summer School Lecture Notes: Higher Order Variational Problems (<http://www.math.cmu.edu/public/cna/publications.html>)
5. I. Fonseca and W. Gangbo, *Degree Theory in Analysis and Applications*. Oxford University Press, 1995.

PUBLICATIONS IN JOURNALS:

See MathSciNet and <http://www.math.cmu.edu/cna/publications.html>.

1. Cristoferi, R., I. Fonseca and L. Ganedi, "Homogenization and Phase Separation with Fixed Wells - The Supercritical Case", *SIAM J. Math. Anal.*, **57** (2025), 2138–2173.

2. Dal Maso, G., I. Fonseca and G. Leoni, "Motion of Islands of Elastic Thin Films in the Dewetting Regime", *Calc. Var. Partial Differential Equations*, **64** (2025), 72 pp.
3. Davoli, E., R. Ferreira, I. Fonseca and J. Iglesias, "Dyadic Partition-Based Training Schemes for TV/TGV Denoising", *J. Math. Imaging Vision*, **66** (2024), 1070–1108.
4. Fonseca, I., L. M. Kreusser, C-B. Schönlieb and M. Thorpe, "Γ-Convergence of an Ambrosio-Tortorelli Approximation Scheme for Image Segmentation", *Indiana Univ. Math. J.*, **73** (2024), 189–230.
5. Acharya, A., I. Fonseca, L. Ganedi and K. Stinson, "Vector Field Models for Nematic Disclinations", *J. Nonlinear Sci.*, **33** (2023), 85.
6. Fonseca, I., N. Fusco, G. Leoni and M. Morini, "Global and Local Energy Minimizers for a Nanowire Growth Model", *Ann. Inst. H. Poincaré Anal Non Linéaire*, **40** (2023), 919–957.
7. Cristoferi, R., I. Fonseca and L. Ganedi, "Homogenization and Phase Separation with Space Dependent Wells - The Subcritical Case", *Arch. Rational Mech. Anal.*, **247** (2023), 94.
8. Fonseca, I., P. Liu and X. Y. Lu, "Higher Order Ambrosio-Tortorelli Scheme with Non-Negative Spatially Dependent Parameters", *Adv. Calc. Var.*, **16** (2023), 885–902.
9. Davoli, E., I. Fonseca and P. Liu, "Adaptive image processing: first order PDE constraint regularizers and a bilevel training scheme", *J. Nonlinear Sci.* **33** (2023), No. 3, 38.
10. Babadjian, J.-F., G. Di Fratta, I. Fonseca, G. Francfort, M. Lewicka and C. B. Muratov, "The Mathematics of Thin Structures", *Quart. Appl. Math.* **81** (2023), No. 1, 1–64.
11. Choksi, R., I. Fonseca, J. Lin and R. Venkatraman, "Anisotropic surface tensions for phase transitions in periodic media", *Calc. Var. Partial Differential Equations* **61** (2022), No. 107, 41.
12. Fonseca, I. and G. Leoni, "Surface evolution of elastically stressed films", *Eur. Math. Soc. Mag.* **119** (2021), 31–39.
13. Fonseca, I., J. Ginster and S. Wojtowytsch, "On the motion of curved dislocations in three dimensions: simplified linearized elasticity", *SIAM J. Math. Anal.* **53** (2021), 2373–2426.
14. Ferreira, R., I. Fonseca and R. Venkatraman, "Homogenization of quasi-crystalline functionals via two-scale-cut-and-project convergence", *SIAM J. Math. Anal.* **53** (2021), 1785–1817.
15. Fonseca, I., G. Leoni and M. G. Mora, "A second order minimality condition for a free-boundary problem", *Ann. Scuola Norm. Sup. Pisa Cl. Sci.* **19** (2019), 1303–1358.
16. Fonseca, I., A. Hagerty and R. Paroni, "Second order structured deformations in the space of functions of Bounded Hessian", *J. Nonlinear Sci.* **29** (2019), 2699–2734.
17. Cristoferi, R., I. Fonseca, A. Hagerty and C. Popovici, "Erratum to: A homogenization result in the gradient theory of phase transitions", *Interfaces Free Bound.* **22** (2020), 245–250.
18. Cristoferi, R., I. Fonseca, A. Hagerty and C. Popovici, "A homogenization result in the gradient theory of phase transitions", *Interfaces Free Bound.* **21** (2019), 367–408.
19. Cristoferi, R. and I. Fonseca, "Piecewise constant reconstruction of damaged color images", *ESAIM Control Optim. Calc. Var.* **25** (2019), 37.
20. Carozza, M., I. Fonseca and A. Passarelli di Napoli, "Regularity results for an optimal design problem with quasiconvex bulk energies", *Calc. Var. Partial Differential Equations.* **57** (2018), 57:68.
21. Fonseca, I., N. Fusco, M. Morini and G. Leoni, "A model for dislocations in epitaxially strained elastic films", *J. Math. Pures Appl.* **111** (2018), 126–160.

22. Dal Maso, G., I. Fonseca and G. Leoni, "Asymptotic analysis of second order nonlocal Cahn-Hilliard-type functionals", *Trans. Amer. Math. Soc.* **370** (2018), 2785–2823.
23. Fonseca, I. and P. Liu, "The weighted Ambrosio-Tortorelli approximation scheme", *SIAM J. Math. Anal.* **49** (2017), 4491-4520.
24. Ferreira, R., I. Fonseca, and M. L. Mascarenhas, "A chromaticity-brightness model for color images denoising in a Meyer's "u+v" Framework", *Calc. Var. Partial Differential Equations* **56** (2017), 56:140.
25. Dacorogna, B., I. Fonseca and G. Mingione, "The various stages of Nicola Fusco". *Nonlinear Anal.* **153** (2017), 2–6.
26. Fonseca, I., G. Leoni and M. Morini, "Equilibria and dislocations in epitaxial growth". *Nonlinear Anal.* **154** (2017), 88-121.
27. Fonseca, I., G. Hayrapetyan, G. Leoni and B. Zwicknagl, "Domain formation in membranes near the onset of instability". *J. Nonlinear Sci.* **26** (2016), 1191–1225.
28. Davoli, E. and I. Fonseca, "Periodic homogenization of integral energies under space-dependent differential constraints". *Port. Math.* **73** (2016), 279–317.
29. Davoli, E. and I. Fonseca, "Homogenization of integral energies under periodically oscillating differential constraints", *Calc. Var. Partial Differential Equations* **55** (2016), 55–69.
30. Fonseca, I., G. Leoni, and X. Y. Lu, "Regularity in time for weak solutions of a continuum model for epitaxial growth with elasticity on vicinal surfaces", *Comm. Partial Differential Equations* **40** (2015), 1942–1957.
31. Dal Maso, G., I. Fonseca and G. Leoni, "Second order asymptotic development for the anisotropic Cahn-Hilliard functional", *Calc. Var. Partial Differential Equations* **54** (2015), 1119–1145.
32. Bufford, L. and I. Fonseca, "A note on two scale compactness for $p = 1$ ", *Portugaliae Math.* **72** (2015), 101–117.
33. Bufford, L., E. Davoli and I. Fonseca, "Multiscale homogenization in Kirchhoff's nonlinear plate theory", *Math. Models Methods Appl. Sci.* **25** (2015), 1765–1812.
34. Fonseca, I., N. Fusco, G. Leoni and M. Morini, "Motion of three-dimensional elastic films by anisotropic surface diffusion with curvature regularization", *Anal. & PDE* **8** (2015), 373–423.
35. Blass, T., I. Fonseca, G. Leoni and M. Morandotti, "Dynamics for systems of screw dislocations" *SIAM J. Appl. Math.* **75** (2015), 393–419.
36. Fonseca, I, A. Pratelli and B. Zwicknagl, "Shapes of epitaxially grown quantum dots", *Arch. Ration. Mech. Anal.* **214** (2014), 359–401.
37. Choksi, R., I. Fonseca and B. Zwicknagl, "A few remarks on variational models for denoising", *Commun. Math. Sci.* **12** (2014), 843–857.
38. Carozza, M., I. Fonseca and A. Passarelli di Napoli, "Regularity results for an optimal design problem with a volume constraint", *ESAIM Control Optim. Calc. Var.* **20** (2014), 460–487.
39. Dal Maso, G., I. Fonseca and G. Leoni, "Analytical validation of a continuum model for epitaxial growth with elasticity on vicinal surfaces", *Arch. Ration. Mech. Anal.* **212** (2014), 1037–1064.
40. Ferreira, R. and I. Fonseca, "Reiterated homogenization in BV via multiscale convergence", *SIAM J. Math. Anal.* **44** (2012), 2053–2098.
41. Ferreira, R. and I. Fonseca, "Characterization of the multiscale limit associated with bounded sequences in BV ", *J. Convex Anal.* **19** (2012), 403–452.

42. Fonseca, I., N. Fusco, G. Leoni and M. Morini, "Motion of elastic thin films by anisotropic surface diffusion with curvature regularization", *Arch. Ration. Mech. Anal.* **205** (2012), 425–466.
43. Chermisi, M., G. Dal Maso, I. Fonseca and G. Leoni, "Singular perturbation models in phase transitions for second order materials", *Indiana Univ. Math. J.* **60** (2011), 367–409.
44. Fonseca, I., N. Fusco, G. Leoni and V. Millot, "Material voids in elastic solids with anisotropic surface energies", *J. Math. Pures Appl.* **96** (2011), 591–639.
45. Carita, G., I. Fonseca and G. Leoni, "Relaxation in $SBV_p(\Omega; S^{d-1})$ ", *Calc. Var. Partial Differential Equations* **42** (2011), 211–255.
46. Fonseca, I. and S. Krömer, "Multiple integrals under differential constraints: two-scale convergence and homogenization", *Indiana Univ. Math. J.* **59** (2010), 427–457.
47. Fonseca, I., G. Leoni, F. Maggi and M. Morini, "Exact reconstruction of damaged color images using a total variation model", *Ann. Inst. H. Poincaré Anal. Non Linéaire* **27** (2010), 1291–1331.
48. Dal Maso, G., I. Fonseca and G. Leoni, "Nonlocal character of the reduced theory of thin films with higher order perturbations", *Adv. Calc. Var.* **3** (2010), 287–319.
49. Fonseca, I. and M. Kruzik, "Oscillations and concentrations generated by A-free mappings and weak lower semicontinuity of integral functionals", *ESAIM Control Optim. Calc. Var.* **16** (2010), 472–502.
50. Bouchitté, G., I. Fonseca and L. Mascarenhas, "The Cosserat vector in membrane theory: a variational approach", *J. Convex Anal.* **16** (2009), 351–365.
51. Dal Maso, G., I. Fonseca, G. Leoni and M. Morini, "A higher order model for image restoration: the one dimensional case", *SIAM J. Math. Anal.* **40** (2009), 2351–2391.
52. Fonseca, I., Fusco, N., Leoni, G., Morini, M., "Equilibrium configurations of epitaxially strained crystalline films: existence and regularity results", *Arch. Ration. Mech. Anal.* **186** (2007), no. 3, 477–537.
53. Fonseca, I., G. Francfort and G. Leoni, Erratum to "Thin elastic films: The impact of higher order perturbations", *Quart. Appl. Math.* **65** (2007), no. 1, 69–98, *Quart. Appl. Math.* **66** (2008), 781–799.
54. Fonseca, I., G. Francfort and G. Leoni, "Thin elastic films: The impact of higher order perturbations", *Quart. Appl. Math.* **65** (2007), 69–98.
55. Baia, M. and I. Fonseca, "The limit behavior of a family of variational multiscale problems", *Indiana Univ. Math. J.* **56** (2007), 1–50.
56. Fonseca, I., M. Morini and V. Slastikov, "Surfactants in foam stability: A phase-field model", *Arch. Rat. Mech. Anal.* **183** (2007), 411–456.
57. Acerbi, E., I. Fonseca and G. Mingione, "Existence and regularity for mixtures of micromagnetic materials", *Proc. R. Soc. Lond. Ser. A Math. Phys. Eng. Sci.* **462** (2006), 2225–2243.
58. Fonseca, I. and C. Popovici, "Coupled singular perturbations for phase transitions", *Asymptot. Anal.* **44** (2005), 299–325.
59. Fonseca, I., J. Malý, "From Jacobian to Hessian: distributional form and relaxation", *Riv. Mat. Univ. Parma (7)* **4** (2005), 45–74.
60. Fonseca, I., G. Leoni and J. Malý, "Weak continuity and lower semicontinuity results for determinants", *Arch. Ration. Mech. Math.* **163** (2005), 411–448.
61. Fonseca, I., G. Leoni and R. Paroni, "On Hessian matrices in the space BH ", *Commun. Contemp. Math.*, **7** (2005), 401–420.

62. Fonseca, I., N. Fusco and Paolo Marcellini, "Topological degree, Jacobian determinant and relaxation", *Boll. Unione Mat. Ital. Sez. B Artic. Ric. Mat.* **8** (2005), 187–250.
63. Bocea, M. and I. Fonseca, "A Young measure approach to a nonlinear membrane model involving the bending moment", *Proc. R. Soc. Edinburgh Sect. A* **134A** (2004), 845–883.
64. Fonseca, I., J. Malý and G. Mingione, "Scalar minimizers with fractal singular sets", *Arch. Ration. Mech. Anal.* **172** (2004), 295–307.
65. Dal Maso, G., I. Fonseca, G. Leoni, M. Morini, "Higher order quasiconvexity reduces to quasiconvexity", *Arch. Ration. Mech. Anal.* **171** (2004), 55–81.
66. Fonseca, I., N. Fusco and P. Marcellini, "On the total variation of the Jacobian", *J. Funct. Anal* **207** (2004), 1–32.
67. Fonseca, I., S. Müller and G. Leoni, " \mathcal{A} -quasiconvexity: weak-star convergence and the gap", *Ann. Inst. H. Poincaré Anal Non Linéaire* **21** (2004), 209–236.
68. Bouchitté, G., I. Fonseca and L. Mascarenhas, "Bending moment in membrane theory", *J. Elasticity* **73** (2003), 1–3.
69. Fonseca, I. and E. Zappale, "Multiscale relaxation of convex functionals", *J. Convex Anal.* **10** (2003), No.2, 325–350.
70. Fonseca, I., G. Leoni and R. Paroni, "On lower semicontinuity in BH^p and 2-quasiconvexification", *Cal. Var. and Partial Differential Equations* **17** (2003), 283–309.
71. Acerbi, E., G. Bouchitté and I. Fonseca, "Relaxation of convex functionals: The gap problem", *Ann. H. Poincaré, Anal, Non Linéaire* **20** (2003), 359–390.
72. Bocea, M. and I. Fonseca, "Equi-integrability results for 3D-2D dimension reduction problems", *ESAIM Control Optim. Calc. Var.* **7** (2002), 443–470.
73. Conti, S., I. Fonseca and G. Leoni, "A Gamma-convergence result for the two-gradient theory of phase transitions", *Comm. Pure Appl. Math.* **55** **55** (2002), 857–936.
74. Fonseca, I., N. Fusco and P. Marcellini, "An 'existence result for a nonconvex variational problem via regularity", *ESAIM Control Optim. Calc. Var.* **7** (2002), 69–95.
75. Bouchitté, G., I. Fonseca, G. Leoni and L. Mascarenhas, "A global method for relaxation in $W^{1,p}$ and in SBV_p ", *Arch. Ration. Mech. Anal.* **165** (2002), 187–242.
76. Bhattacharya, K., I. Fonseca and G. Francfort, "An asymptotic study of the debonding of thin films", *Arch. Ration. Mech. Anal.* **161** (2002), 205–229.
77. Fonseca, I., G. Leoni, J. Malý, and R. Paroni, "A note on Meyers' theorem in $W^{k,1}$ ", *Trans. Amer. Math. Soc.* **354** (2002), 3723–3741.
78. Brandon, D., I. Fonseca and P. Swart, "Oscillations in a dynamical model of phase transition", *Proc. Roy. Soc. Edinburgh Sect. A* **131A** (2001), 59–81.
79. Fonseca, I. and G. Leoni, "On lower semicontinuity and relaxation", *Proc. Roy. Soc. Edinburgh* **131A** (2001), 519–565.
80. Braides, A., and I. Fonseca, "Brittle thin films", *Appl. Math. Optim.* **44** (2001), 299–323.
81. Dacorogna, B. and I. Fonseca, "A-B quasiconvexity and implicit partial differential equations", *Calc. Var. Partial Differential Equations* **14** (2002), 115–149.

82. Fonseca, I. and G. Francfort, "On the inadequacy of the scaling of linear elasticity for 3D-2D asymptotics in a nonlinear setting", *J. Math. Pures Appl.* **80** (2000), 547–562.
83. Braides, A., I. Fonseca and G. Leoni, "A-quasiconvexity: relaxation and homogenization", *ESAIM Control Optim. Calc. Var.* **5** (2000), 539-577.
84. Bouchitté, G., I. Fonseca and L. Mascarenhas, "Relaxation of variational problems under trace constraints", *Nonlinear Anal.* **49** (2002), 221–246.
85. Braides, A., I. Fonseca and G. Francfort, "3D-2D asymptotic analysis for inhomogeneous thin films", *Indiana Univ. Math J.* **49** (2000), 1367–1404.
86. Dacorogna, B. and I. Fonseca, "Minima absolus pour des energies ferromagnetiques", *C. R. Acad. Sci. Paris Sér. I. Math.* **331** (2000), 497–500.
87. Fonseca, I. and G. Leoni, "Relaxation results in micromagnetics", *Ricerche Mat.* **XLIX** (2000), 269–304.
88. Fonseca, I. and G. Leoni, "Some remarks on lower semicontinuity", *Indiana Univ. Math. J.* **49** (2000), 617–635.
89. Fonseca, I. and C. Mantegazza, "Second order singular perturbation models for phase transitions", *Siam J. Math. Anal.* **31** (2000), 1121 - 1143.
90. Barroso, A. C., I. Fonseca and R. Toader, "A relaxation theorem in the space of functions of bounded deformation", *Ann. Scuola Norm. Sup. Pisa Cl. Sci.* **29** (2000), 19–49.
91. Fonseca, I. and S. Müller, "A-quasiconvexity, lower semicontinuity, and Young measures", *SIAM J. Math. Anal.* **30** (1999), 1355–1390.
92. Dacorogna, B., I. Fonseca, J. Malý, and K. Trivisa, "Manifold constrained variational problems", *Calc. Var.* **9** (1999), 185–206.
93. Ambrosio, L., I. Fonseca, P. Marcellini and L. Tartar, "On a Volume-Constrained Variational Problem", *Arch. Ratiom. Mech. Anal.* **149** (1999), 23–47.
94. Choksi, R., G. Del Piero, I. Fonseca and D. Owen, "Structured deformations as energy minimizers in models of fracture and hysteresis", *Math. Mech. Solids*, **4** (1999), 321–356.
95. Fonseca, I. and G. Francfort, "3D-2D asymptotic analysis of an optimal design problem for thin films", *J. Reine Angew. Math.* **505** (1998), 173–202.
96. Fonseca, I. and G. Leoni, "Bulk and contact energies: nucleation and relaxation", *SIAM J. Math. Anal.* **30** (1999), 190–219.
97. Fonseca, I., S. Müller and P. Pedregal, "Analysis of concentration and oscillation effects generated by gradients", *SIAM J. Math. Anal.*, **29** (1998), 736-756.
98. Fonseca, I., J. Schaeffer and M. Shvartsman, "Oscillations in one-dimensional elasticity with surface energy", *Quart. Appl. Math.* Vol. LVII **3** (1999), 475-499.
99. Bouchitté, G., I. Fonseca and L. Mascarenhas, "A global method for relaxation", *Arch. Rational Mech. Anal.* **145** (1998), 51-98.
100. Bouchitté, G., I. Fonseca and J. Malý, "The effective bulk energy of the relaxed energy of multiple integrals below the growth exponent", *Proc. Roy. Soc. Edinburgh* **128A** (1998), 463-479.
101. Acerbi, E., I. Fonseca, I. and N. Fusco, "Regularity of minimizers for a class of membrane energies", *Ann. Scuola Norm. Sup. Pisa Cl. Sci.* **27** (1997), 11–25 (volume dedicated to E. De Giorgi).
102. Fonseca, I. and J. Malý, "Relaxation of multiple integrals below the growth exponent", *Ann. Inst. H. Poincaré, Anal. Non Linéaire* **14** (1997), 309–338.

103. Fonseca, I. and N. Fusco, "Regularity results for anisotropic image segmentation models", *Ann. Scuola Norm. Sup. Pisa Cl. Sci.* Issue 3, **24** (1997), 463–499.
104. Choksi, R. and I. Fonseca, "A change of variables formula for mappings in BV ", *Proc. Amer. Math. Soc.* **125** (1997), 2065–2072.
105. Acerbi, E., I. Fonseca and N. Fusco, "Regularity results for equilibria in a variational model for fracture", *Proc. Roy. Soc. Edinburgh* **127A** (1997), 889–902.
106. Choksi, R. and I. Fonseca, "Bulk and interfacial energy densities for structured deformations of continua", *Arch. Rational Mech. Anal.* **138** (1997), 37–103.
107. Fonseca, I. and P. Marcellini, "Relaxation of multiple integrals in subcritical Sobolev spaces", *J. Geom. Anal.* **7** **1** (1997), 57–81.
108. Barroso, A. C., G. Bouchitté, G. Buttazzo and I. Fonseca, "Relaxation of bulk and interfacial energies", *Arch. Rational Mech. Anal.* **135** (1996), 107–173.
109. Ambrosio, L., G. Buttazzo and I. Fonseca, "Lower semicontinuity problems in Sobolev spaces with respect to a measure", *J. Math. Pures Appl.* **75** (1996), 211–224.
110. Fonseca, I. and G. Francfort, "Relaxation in BV versus quasiconvexification in $W^{1,p}$: a model for the interaction between fracture and damage", *Calc. Var. Partial Differential Equations* **3** (1995), 407–446.
111. Fonseca, I. and M. Katsoulakis, " Γ -convergence, minimizing movements and generalized mean curvature evolution", *Differential Integral Equations* **7** (1995), 1619–1656.
112. Fonseca, I. and W. Gangbo, "Local invertibility of Sobolev functions", *SIAM J. Math. Anal.* **26** (2) (1995), 280–304.
113. Fonseca, I., D. Kinderlehrer and P. Pedregal, "Energy functionals depending on elastic strain and chemical composition", *Calc. Var. Partial Differential Equations* **2** (1994), 283–313.
114. Barroso, A. C. and I. Fonseca, "Anisotropic singular perturbations - the vectorial case", *Proc. Roy. Soc. Edinburgh Sect. A* **124A** (1994), 527–571.
115. Fonseca, I. and S. Müller, "Relaxation of quasiconvex functionals in $BV(\Omega, \mathbb{R}^p)$ for integrands $f(x, u, \nabla u)$ ", *Arch. Rational Mech. Anal.* **123** (1993), 1–49.
116. Fonseca, I. and P. Rybka, "Relaxation of multiple integrals in the space $BV(\Omega; \mathbb{R}^p)$ ", *Proc. Roy. Soc. Edinburgh Sect. A* **121A** (1992), 321–348.
117. Fonseca, I. and G. Parry, "On a class of invariant functionals", *Proc. Roy. Soc. London Ser. A* **436 A** (1992), 317–329.
118. Dacorogna, B. and I. Fonseca, "A minimization problem involving variation of the domain", *Comm. Pure Appl. Math.* **Vol. XLV** (1992), 871–897.
119. Fonseca, I. and G. Parry, "Equilibrium configurations of defective crystals", *Arch. Rational Mech. Anal.* **120** (1992), 245–283.
120. Fonseca, I., "Lower semicontinuity of surface energies", *Proc. Roy. Soc. Edinburgh Sect. A* **120A** (1992), 99–115.
121. Fonseca, I. and S. Müller, "A uniqueness proof for the Wulff theorem", *Proc. Roy. Soc. Edinburgh Sect. A* **119A** (1991), 125–136.
122. Fonseca, I. and S. Müller, "Quasi-convex integrands and lower semicontinuity in L^1 ", *SIAM J. Math. Anal.* **23** (1992), 1081–1098.

123. Fonseca, I., "The Wulff theorem revisited", *Proc. Roy. Soc. London Ser. A* **A 432** (1991), 125-145.
124. Fonseca, I., "Phase transitions of elastic solid materials", *Arch. Rational Mech. Anal.* **107** (1989), 195-223.
125. Fonseca, I. and L. Tartar, "The displacement problem for elastic crystals", *Proc. Roy. Soc. Edinburgh Sect. A* **113 A** (1989), 159-180.
126. Fonseca, I. and L. Tartar, "The gradient theory of phase transitions for systems with two potential wells", *Proc. Roy. Soc. Edinburgh Sect. A* **111 A** (1989), 89-102.
127. Fonseca, I., "Interfacial energy and the Maxwell rule", *Arch. Rational Mech. Anal.* **106** (1989), 63-95.
128. Fonseca, I., "The lower quasiconvex envelope of the stored energy function for an elastic crystal", *J. Math. Pures Appl.* **67** (1988), 175-195.
129. Fonseca, I., "Variational methods for elastic crystals", *Arch. Rational Mech. Anal.* **97** (1987), 189-220.

ARTICLES ACCEPTED FOR PUBLICATION:

1. Cristoferi, R., I. Fonseca, J. Iglesias and R. Ferreira, "Monotonicity of the Jump Set and Jump Amplitudes in One-Dimensional TV Denoising". Accepted in *Journal of Nonlinear Science*.
2. Fonseca, I., L. Kreutz and G. Leoni, "Second-Order Γ -Limit for the Cahn-Hilliard Functional with Dirichlet Boundary Conditions, I". Accepted in *Calc. Var. Partial Differential Equations*.

ARTICLES SUBMITTED FOR PUBLICATION:

1. Braides, A., and I. Fonseca, "Asymptotic Analysis of Higher-Order Perturbations of the Perona–Malik Functional". Submitted to *Adv. Calc. Var.*
2. Dal Maso, G., I. Fonseca and R. Ferreira, " Γ -Convergence and Stochastic Homogenization for Functionals in the \mathcal{A} -Free Setting". Submitted to *J. Math. Pures Appl.*
3. Fonseca, I., L. Kreutz and G. Leoni, "Second-Order Γ -Limit for the Cahn-Hilliard Functional with Dirichlet Boundary Conditions, II". Submitted to *Calc. Var. Partial Differential Equations*.

BOOK CHAPTERS, PUBLICATIONS IN PROCEEDINGS, REPORTS:

1. Ferreira, R., I. Fonseca, and R. Venkatraman, "Variational homogenization: old and new." *Proc. Int. Cong. Math. 2022*, Vol. 5, pp. 3724–3755. EMS Press, Berlin.
2. Cristoferi, R., I. Fonseca, and R. Venkatraman, "Phase separation in heterogeneous media". Association for Women in Mathematics Series volume "Research in the Mathematics of Materials Science", *Assoc. Women Math. Ser.*, 31, 367-382, Springer, Cham, 2022.
3. Davoli, E. and I. Fonseca, "Relaxation of p -growth integral functionals under space-dependent differential constraints". *Trends in Applications of Mathematics to Mechanics*, 1-21, Springer INdAM Ser., 27, Springer, Cham, 2018.
4. Fonseca, I. and J. Malý, "Trends in the calculus of variations", *From Jacobian to Hessian: Distributional Form and Relaxation, Proceedings* (Parma 15th-18th September 2004), *Rivista di Matematica della Università di Parma*, **4** (2005), 45–74.
5. Acerbi, E., I. Fonseca and G. Mingione, "A model for mixtures of micromagnetic materials allowing existence and regularity", *Progress in Nonlinear Differential Equations* **35** (2002), 1–8, Birkhäuser, Basel.
6. Fonseca, I., and G. Leoni, "Higher order variational problems and phase transitions in nonlinear elasticity", in *Progress in Nonlinear Differential Equations and Their Applications*, Birkhäuser.

7. Davis, M., I. Fonseca and M. Grötschel, "The impact of mathematical research on industry and vice-versa", *Proceedings of the Third European Congress of Mathematics*, Barcelona, Spain, July 2000.
8. Irene Fonseca, J. Schaeffer and M.M. Shvartsman, "Creation and propagation of oscillations in one dimensional elasticity with surface energy", *Proceedings Macau*, 1998.
9. Fonseca, I. and J. Malý, "Remarks on the determinant in nonlinear elasticity and fracture mechanics", in *Applied Nonlinear Analysis*, volume in honour of J. Nečas on his 70th birthday, Plenum Press (Kluwer Academic Press), 1999.
10. Fonseca, I., "Materials instabilities and image segmentation: new trends in PDEs and in the calculus of variations", *Proceedings of the Second Euroconference and International Symposium on Material Instabilities*, Thessaloniki, August 31 - September 5 1997.
11. Fonseca, I., "Regularity and optimal design results for elastic membranes", *Proceedings of the Journées Michel Artola*, Bordeaux, November 6-7, 1998.
12. Fonseca, I., "Variational techniques for problems in materials science", in *Progress in Nonlinear Differential Equations and Their Applications*, **25**, Birkhäuser, Verlag-Basel, 1996.
13. Fonseca, I., "Variational methods in materials sciences", in *Proceedings of the conference on Smart Structures and Materials*, SPIE, Orlando, Florida, 13-18 April, 1994.
14. Fonseca, I., "Lower semicontinuity of energy functionals depending on elastic strain and chemical composition", in *Proceedings of Calculus of Variations, Homogenization and Continuum Mechanics* CIRM, Marseille-Luminy, 21-25 June 1993
15. Fonseca, I. and G. Parry, "Variational models for crystals with defects", in *Defects and Elasticity in the Characterization of Crystalline Solids* (L. M. Brock ed.), AMD -**Vol. 148**, 1992.
16. Fonseca, I., D. Kinderlehrer and P. Pedregal, "Relaxation in $BV \times L^\infty$ of functionals depending on strain and composition", *Boundary Value Problems for Partial Differential Equations and Applications*, dedicated to Enrico Magenes, J. L. Lions and C. Baiocchi eds., Masson, Paris, 1993.
17. Brandon, D., I. Fonseca and P. Swart, "Dynamics and oscillatory microstructure in a model of displacive phase transformations", *Proceedings of the 1993 Metz Days*, Pittman Research Notes in Mathematics.
18. Fonseca, I. and G. Parry, "Variational problems for crystals with defects", *Proceedings of the IMA Workshop on Microstructure and Phase Transition*, Nov. 12-16, 1990 (eds. David Kinderlehrer, Richard James and Mitchell Luskin).
19. Fonseca, I. and G. Parry, "Remarks on variational problems for defective crystals". Report of Dept. of Mathematics, Carnegie Mellon University.
20. Davini C., I. Fonseca and G. Parry, "Variational problems in defective crystals", *Proceedings of the Conference on Phase Transitions and Plastic Like Behavior of Materials*, Grenoble, August, 1991.
21. Fonseca, I., "Remarks on phase transitions", in *Recent Advances in Nonlinear Elliptic and Parabolic Problems*, (Benilan, Chipot, Evans, Pierre, eds.), Longman, 1989.
22. Fonseca, I., "Stability of elastic crystals", in *Non-Classical Continuum Mechanics*, (Knops, R. J. and Lacey, A. A. eds.), Cambridge Uni. Press, 1987, 187-196.

COLLABORATORS IN RECENT YEARS INCLUDE:

Timothy Blass (Capital One)

Laura Bufford (Squarespace)

Menita Carozza (U. Sannio (Italy))

Rustum Choksi (McGill (Canada))
Riccardo Cristoferi (Radboud University (The Netherlands))
Bernard Dacorogna (EPFL (Switzerland))
Gianni Dal Maso (SISSA (Italy))
Elisa Davoli (TU Vienna (Austria))
Rita Ferreira (KAUST (Saudi Arabia))
Nicola Fusco (U. Naples (Italy))
Likhith Ganedi (U. Utah)
Janusz Ginster (Technische Universität Berlin (Germany))
Adrian Hagerty (Edge Case Research)
Gurgen Hayrapetyan (Mercedes Benz Research and Development, Columbia U.)
José Iglesias (Twente U. (The Netherlands))
Martin Kruzik (Academy of Sciences (Czech Republic))
Giovanni Leoni (CMU)
Jessica Lin (McGill (Canada))
Pan Liu (Department of Radiology, First Medical Center of Chinese PLA General Hospital, Beijing (China))
Xin Yang Lu (Lakehead U. (Canada))
Luisa Mascarenhas (U. Nova de Lisbon (Portugal))
Giuseppe Mingione (U. Parma (Italy))
Maria Giovanna Mora (U. Pavia (Italy))
Massimiliano Morini (U. Parma (Italy))
Ethan O'Brien (University of Arizona)
Antonia Passarelli di Napoli (U. Naples (Italy))
Aldo Pratelli (U. Pisa (Italy))
Raghavendra Venkatraman (U. Utah)
Stephan Wojtowytsch (U. Pittsburgh)
Barbara Zwicknagl (Technische Universität Berlin (Germany))

EDUCATION AND OTHER ACTIVITIES:

Since 1998, Fonseca has been the Director of the NSF Center for Nonlinear Analysis (CNA, DMS 9803791) in Carnegie Mellon University. The activities of the CNA may be found at <http://www.math.cmu.edu/cna/index.html>. These include maintaining a series of scientific reports, weekly seminars, weekly working groups, a visitors' program, the organization of conferences, workshops and summer schools, networking with other research institutions in the US and abroad, and developing mobility, interchange, and internationalization programs for CNA trainees and research faculty.

SYNERGISTIC ACTIVITIES

Internationalization and bridging with other research groups and institutions are key to keep abreast of recent developments in applied analysis, to be in position to identify cutting-edge mathematical questions, and to be a worldwide asset in the training of postdoctoral fellows and graduate students, cognizant of research opportunities at the interface between mathematical and physical sciences and engineering. As Director of the CNA since 1998, Fonseca is actively engaged in searching for new opportunities, facilitating already existing collaborations, and fostering the building of new bridges across different institutions in the US and in Europe, thus guaranteeing and securing its reputation as a national and worldwide asset in the education and training of a new generation of researchers who will be at the forefront of mathematics, well informed and well positioned to respond to mathematically challenging areas

of materials science, solid state physics, and biotechnology. With these partnerships the CNA seeks to facilitate already existing collaborations and to search for new opportunities including co-organization of conferences and workshops, co-organization of summer schools, mobility for postdocs and advanced graduate students.

- Fonseca was the PI of the 5 million dollars/5 year award of the National Science Foundation funded PIRE (Partnerships for International Research and Education) on "Science at the Triple Point Between Mathematics, Mechanics and Materials Science" (<http://www.math.cmu.edu/PIRE/>) that expired in Fall 2017. Collaborators on this PIRE project included four U.S. institutions: Carnegie Mellon University (PA), California Institute of Technology, New York University, and University of Minnesota; six European institutions: University of Antwerp (Belgium), University of Bonn (Germany), Max Planck Institute for Mathematics in the Sciences (Germany), International School for Advanced Studies (SISSA)(Italy), University of Oxford (UK), and the University of Warwick (UK); and an industrial partner: Robert Bosch GmbH (Germany and USA).
- The University of Naples (Italy) and the CNA signed an agreement in 2012 to facilitate the mobility of young researchers between the two institutions.
- In 2012 the Center for Nonlinear Analysis agreed to participate as associate organization in the research project "Mechanics of Complex Materials", managed by the Italian Ministry of Education, University and Research, under the scientific responsibility of Professor Cesare Davini as coordinator of the Research Unit of Udine (Italy). This agreement was also extended to the University of Trento (Italy), under the same grant proposal.
- International School for Advanced Studies (SISSA) in Trieste. This is an exchange agreement of faculty and trainees with the SISSA in Trieste, beginning in 2005, and renewed in 2011, 2016 and 2023.

EXTENDED VISITS, SEMINARS, COLLOQUIA, INVITED PRESENTATIONS:

Distinguished Visitor in the Faculty of Science, National University of Singapore (Singapore), December 2026

Iberian Online Analysis Seminar, June 2026

Mathematics Colloquium at Florida State University, April 2026

Program "Free Boundary Problems", Erwin Schrödinger International Institute for Mathematics and Physics (ESI), Vienna (Austria), October 2025

Lecturer of the 2025 Ziwet lectures (2) at the University of Michigan, April 2025

Georgetown University, Colloquium, December 2024

ESI Senior Research Fellow, Erwin Schrödinger International Institute for Mathematics and Physics, Vienna (Austria), Spring 2024

Colloquium at the Center for Applied Mathematics, Cornell University, March 2024

Seminar at the Mathematical Modeling Seminar Series, Rochester Institute of Technology, March 15, 2022

UTK-PDE Distinguished Lecture Series, University of Tennessee, 5 lectures, Fall 2021-Spring 2022

Undergraduate Seminar, Carnegie Mellon University, December 1, 2021

Undergraduate Seminar, Missouri State University, November 30, 2021

Online North East PDE and Analysis Seminar (ONEPAS), speaker and curator of the Thin Films series, April-May, 2021 (via ZOOM)

William J. Spencer Lecture, Kansas University, April 22, 2021 (via ZOOM)

CMAI (Center for Mathematics and AI) Colloquium, George Mason University, January 29, 2021 (via ZOOM)

Chair in Applied Analysis (CAA) Seminar Series, University of Erlangen-Nuremberg, Germany, November 12, 2020 (via ZOOM)

One World PDE Seminar (OWPDE), October 27, 2020 (via ZOOM)

MathSEE Symposium 2020 - Mathematics in Sciences, Engineering and Economics, Karlsruhe Institute of Technology). Plenary talk, October 9, 2020 (via ZOOM)

Women in STEM, Mumbai, Kolkata, New Delhi, India, July 30, 2020 (via ZOOM)
Boeing Colloquium, University of Washington, Seattle, 2020-2021
Vienna School of Mathematics, Opening Ceremony, Vienna, Austria, October 16, 2019
University of Pavia, May 27-June 7, 2019
The Mathematical Design of New Materials, Isaac Newton Institute for Mathematical Sciences, Cambridge, UK, April 14-May 4, 2019
Colloquium, Applied Math and Computational Science, University of Pennsylvania, April 2018
2018 Porcelli Lectures at LSU (3 lectures), April 2018
Virginia Mathematics Lectures (3 lectures), U. Virginia, March 2018
Colloquium, Purdue University, May 2017.
Aziz Lectures, University of Maryland, College Park, May 2016.
NJIT, October 2014.
Portland State, October 2014.
Drexel Distinguish Lecture Series, September 2014.
IAS/Park City Mathematics Institute (PCMI) Summer Session on Mathematics and Materials, Utah, June 29-July 19, 2014.
University of Akron, Ohio, April 22, 2014.
KAUST, Saudi Arabia, March 9-15, 2014.
Women in Mathematics Day and the Jean E. Rubin Memorial Lecture, U. Texas at Austin, November 12, 2013.
National Center for Mathematics and Interdisciplinary Science (NCMIS) Distinguished Lecture, Beijing (China), May 13, 2013.
Harold J. Gay lecturer at WPI, February 1, 2013.
Distinguished Women in Mathematics Lecturer, University of Texas at Austin, November 12-13, 2012.
Zhejiang University, Distinguished Lecture, November 11, 2011.
Universitat Autònoma de Barcelona (Spain), November 4, 2011.
CRM-ISM Colloquium, McGill University, Montreal, Canada, March 4, 2011.
IMPA, Instituto Nacional de Matemática Pura e Aplicada, Rio de Janeiro, Brazil, March 2010.
Cornell University, March 5, 2010.
Mahidol University, Chulalongkorn University, Bangkok, Thailand, November 2009.
Center for Mathematics and its Applications, The Australian National University, Canberra, Australia, March 2009.
University of Minneapolis, Minnesota, May 2008.
Washington University, April 2008.
Georgia Tech, November 2007.
Penn State. October 2007.
Centro De Giorgi, Pisa, October 2006.
Fields Institute, Toronto, November 2005.
University of Salerno, September 2006.
CISM Course "Thin elastic structures: theory, applications and computational aspects".
Georgia Tech., February 2004.
Caltech, February 2003.
Oberwolfach, Germany, RIP program. May 2002.
Department of Mathematics, U. of Toulon (France), Invited Professor, September 2002.
University of Maryland, February 2002.
University of Toulon, June 17-30, 2001.
University of Parma, Italy, December 2000.
Isaac Newton Institute, Cambridge (UK), December 1999.
Département de Mathématiques, Université de Toulon (France), Professeuse Invitée, June 1998.

Mathematical Institute, Oxford (UK), March 7-13, 1998.
 ETH, Zürich (Switzerland), Department of Mathematics, January 16-23, 1998.
 Sabbatical leave, *Max-Planck Institute for Mathematics in the Sciences, 1997-1998*.
 Intensive course on Calculus of Variations. Univesità Degli Studi di Napoli Federico II, June 1-15, 1997.
 Summer school on Variational Methods in Materials Science: Phase Transitions, Oscillations and Concentrations. University of Jyväskylä (Finland), August 19-23, 1996.
 Summer school on "Calculus of Variations: Oscillations, Concentrations and Generalized Solutions Applications." University of Évora (Portugal). June 16-July 7, 1996.
 University Pierre et Marie Curie (Paris VI), Professeur Invitée, May 15-June 15, 1996.
 University of Tennessee, Knoxville, Tennessee, February 7-11, 1996.
 IMA, University of Minnesota, September 16-23, 1995.
 University of Toulon (France), May - June, 1995.
 University of Pisa (Italy), March 13 - 26, 1993.
 Ecole Polytechnique Fédérale de Lausanne, Lausanne (Switzerland), May-June 1992.
 Istituto delle Applicazioni del Calcolo, Rome (Italy), July 7 - 15, 1991..
 University of Lisbon (Fellow of the Gulbenkian Foundation) (Portugal), June 15-July 31, 1991.
 University of Minnesota, November 10-17, 1990.
 MSRI (Berkeley), October 1-13, 1990.
 University of Bath (U. K.), May 1990-July 1990.
 Brown University, October 1989.
 Instituto Superior Técnico de Lisboa (Portugal), July 1989.
 University of Trento, Trento (Italy), July 1988.
 Heriot-Watt University, Edinburgh (G.B), March 24-April 12, 1986.

PARTICIPATION IN CONFERENCES, WORKSHOPS AND SUMMER SCHOOLS:

International Conference on the Mathematics of Interfaces, Complex Structures, and Singular Limits, Erlangen (Germany), February 22-25, 2027.

New Insights: Calculus of Variations, Optimization and Long-range Applications, Naples (Italy), September 14-18, 2026.

Fluids, Structures and their Interactions, CIME, Cetraro (Italy), August 31-September 4, 2026.

14th Americas Conference on Differential Equations and Nonlinear Analysis (14th A-DENA), University of Western Ontario in London, Ontario (Canada), August 3-7, 2026.

Variational Problems in the Physical and Data Sciences: Analysis, Modeling, and Simulation, Banff International Research Station for Mathematical Innovation and Discovery (BIRS) (Canada), July 5-10, 2026.

Equadiff 2026, Prague (Czech Republic), June 29-July 3, 2026. Honorary Lecture.

Workshop on Variational Models in Materials Science - 4th edition, Naples (Italy), June 23-25, 2026.

Conference on "(Ir)Regularity @Parma I", Parma (Italy), May 18-22, 2026.

Winter School "Modern Methods in the Calculus of Variations", Bonn (Germany), February 23-27, 2026.

Calculus of Variations: Challenges in Continuum Mechanics, Joint Mathematics Meeting, Washington, DC., January 5, 2026.

5th Austrian Calc Var Day in Graz (Austria), October 16-17, 2025.

International Geometric Analysis, Milan (Italy), June 23-27, 2025.

Calculus of Variations - Old Problems and New Directions: Celebrating Jan Kristensen's Academic Life on the Occasion of his 60th Birthday, Edinburgh (UK), February 17-21, 2025.

SIAM Washington Baltimore Section Meeting, Plenary Talk, George Mason University, December 6, 2024.

Symposium in celebration of Kaushik Bhattacharya's 60th Birthday, Caltech, November 15-16, 2024.

ICMAM Latin America, October 14-18, 2024.

Frontiers of the Calculus of Variations, a Celebration of the Mathematics of Gianni Dal Maso, Samos (Greece), September 16-20, 2024.

Geometric and Variational Analysis, In Memory of Jan Malý, Będlewo (Poland), June 9-15, 2024.

SIAM Conference on Mathematical Aspects of Materials Science, minisymposium Mathematical Modeling of Microstructural Materials, Pittsburgh, May 19-23, 2024.

Nonlinear PDEs Conference in honor of Vladimir Šverák's 65th birthday, U. Minnesota, May 13-17, 2024.

IAS Focused Program on Continuum Theory and Mathematical Modeling of Phase-Transition Materials - A Symposium in Honor of Professor Richard D. James on His 70th Birthday, Hong-Kong, March 26-30, 2024.

Symposium in the Occasion of the 30th Anniversary of the Erwin Schrödinger Institute for Mathematics and Physics, ESI in Vienna (Austria), November 9-10, 2023.

Panorama of Mathematics II, Hausdorff Center for Mathematics, Bonn (Germany), October 4-6, 2023.

Laplacian Growth Models: Theory and Applications, IMSI (U. Chicago), June 26-30, 2023.

Conference in Honor of the 60th birthday of Luigi Ambrosio, Pisa (Italy), June 12-16, 2023.

Second UNC Greensboro Conference in Partial Differential Equations, June 9-11, 2023.

Third International Conference on Applications of Mathematics to Nonlinear Sciences (AMNS-2023), Pokhara (Nepal), May 25-28, 2023.

BIRS Workshop on "Compensated Compactness and Applications to Materials", Banff International Research Station (BIRS) at the Banff Center, Alberta, Canada, April 2-April 7, 2023

13th Americas Conference on Differential Equations and Nonlinear Analysis and the ICMC - Summer Meeting on Differential Equations, City of São Carlos, Brazil, January 30-February 3, 2023. Plenary Lecture.

Applied Analysis: From the Calculus of Variations to Materials Science, Finance and Data Science, a celebration of the science of Bob Kohn, Flat Iron Institute (NY), November 5-7, 2022.

Summer School on Surfaces, Frauenchiemsee Island, Bavaria, August 28-September 2, 2022.

International PDE Conference, Oxford (UK), August 20-23, 2022.

ICM 2022, July 6-14, 2022. Invited Lecture.

Symposium on Trends in Applications of Mathematics to Mechanics (STAMM), Brescia (Italy), June 15-June 17, 2022.

Advances in Calculus of Variations, in the occasion of the 65th birthday of Frank Duzaar, Naples (Italy), June 13-17, 2022.

International Workshop on Applications of Geometric Methods of Functional Analysis, a conference on the occasion of Bob Hardt's retirement, Rice University, March 17-20, 2022.

Free Boundary Problems and Related Evolution Equations, University of Vienna (Austria), February 21-25, 2022.

15th International Conference on Free Boundary Problems, Humboldt University, Berlin (Germany), September 13-17, 2021.

SIAM Conference on Mathematical Aspects of Materials Science (MS21), Minisymposium on “Soft Materials: Liquid crystals and Beyond”, Minisymposium “Geometric flows in Problems from Materials Science”, Basque Center of Applied Mathematics, Bilbao (Spain), May 24-29, 2021.

Canadian Mathematical Society 2020 Winter Meeting, McGill University (Canada), December 4-7, 2020. Plenary talk.

MathSEE Symposium 2020 – Mathematics in Sciences, Engineering and Economics, Karlsruhe Institute of Technology (Germany), October 7-9, 2020. Plenary talk.

Calculus of Variations, Oberwolfach (Germany), August 2-8, 2020.

30th National Conference of Calculus of Variations, Levico (Italy), February 3-7, 2020. Plenary Lecture.

Calculus of Variations and Applications, a conference to celebrate the 65th birthday of Gianni Dal Maso, SISSA (Trieste, Italy), January 28-February 1, 2020.

1st WM²-Women in Mathematics Meeting, Caparica (Portugal), July 22-24, 2019.

Calculus of Variations in Schiermonnikoog, Frisian Islands (The Netherlands), July 1-5, 2019.

Global Portuguese Mathematicians, Porto (Portugal), June 24-26, 2019. Invited Lecture.

Special Session on Multiscale Problems in the Calculus of Variations, Joint Mathematics Meeting (JMM), Baltimore, January 18, 2019.

Gradient Flows: Challenges and New Directions, ICMS, Edinburgh, UK, September 10-14, 2018.

New Trends in the Variational Modeling of Failure Phenomena, Erwin Schrödinger International Institute for Mathematics and Physics (ESI), Vienna, Austria, August 20-24, 2018. Keynote Address.

Recent Advances in Applied and Computational Mathematics: A Workshop in Memory of Professor Peter Smereka, University of Michigan’s Center for Applied and Interdisciplinary Mathematics, July 18-20, 2018.

Nonlocal Interactions: Dislocations and Beyond, University of Bath, UK, June 11-14, 2018.

Nonlinear Analysis and the Physical and Biological Sciences: Tribute to the Memory of Jack Carr, ICMS, Edinburgh, UK, May 21-22, 2018.

Women in Mathematics of Materials (WIMM) Workshop, University of Michigan’s Center for Applied and Interdisciplinary Mathematics, May 14-18, 2018.

Midwest Women in Mathematics Symposium, Purdue University, April 7, 2018.

Multiscale Modeling Theory and Computation, An International Conference Honoring Professor Mitchell Luskin on the Occasion of his 65th Birthday, University of Minnesota, Minneapolis, September 23-25, 2017.

Special Session on Advances in Analysis and Related Applications, Mathematical Congress of the Americas 2017 (MCA2017), Montréal, Canada, July 24-28, 2017.

SIAM 2017 Annual Meeting, Pittsburgh, July 10-14, 2017.

Analysis of Dislocation Models for Crystal Defects, BIRS Center of Casa Matematica Oaxaca (CMO), Oaxaca, Mexico, June 25-30, 2017.

Firenze-Montecatini-2017 Workshop on Calculus of Variations and PDE’s, on the occasion of Paolo Marcellini’s 70th Birthday, Firenze-Montecatini, Italy, June 12-15, 2017.

Nonconvexity, Nonlocality and Incompatibility: From Materials to Biology. A Conference in Honor of Lev Truskinovsky’s 60th Birthday, University of Pittsburgh, May 5-7, 2017.

Recent Contributions of Women to Partial Differential Equations, U. Vienna, Austria, November 28-30, 2016.

Lecce Conference in the Calculus of Variations and Partial Differential Equations, Lecce, Italy, October 4-7, 2016.

Mathematical Tribute to Ennio De Giorgi, Pisa, Italy, September 19-23, 2016.

11th AIMS Conference, Orlando, July 1-5, 2016.

Entropy Methods, Dissipative Systems, and applications, Erwin Schrödinger International Institute for Mathematical Physics, Vienna, Austria, June 13-17, 2016.

SIAM Conference on Mathematical Aspects of Materials Science, minisymposium on "Microscopic, Mesoscale and Macroscopic Models in Mechanics", Philadelphia, May 8-12, 2016.

Winter School on Calculus of Variations in Physics and Materials Science, University of Würzburg (Germany), February 17-19, 2016.

International Workshop on Calculus of Variations and its Applications, on the Occasion of Luisa Mascarenhas' 65th Birthday, Lisbon, Portugal, December 17-19, 2015.

SIAM Conference on Analysis of Partial Differential Equations, minisymposium on "PDEs for Defects Problems in Materials Science", Scottsdale, Arizona, December 7-10, 2015.

SIAM Conference on Analysis of Partial Differential Equations, minisymposium on "PDEs in Imaging", Scottsdale, Arizona, December 7-10, 2015.

Mathematics and Mechanics in the 22nd Century: Seven Decades and Counting..., conference in honor of Jerry Ericksen's 90th Birthday, Eugene, Oregon, October 23-25, 2015.

AMS Special Session on "Nonlinear PDEs and Calculus of Variations", Loyola University Chicago, October 3-4, 2015.

Workshop in Honor of Jan Malý's 60th Birthday, Prague, Czech Republic. September 18-20, 2015.

Calculus of Variations and Geometric Measure Theory, University of Sussex, United Kingdom, September 7-9, 2015.

AMS-EMS-SPM International Meeting, Plenary Speaker, Porto, June 10-13, 2015.

Calculus of Variations and Nonlinear Partial Differential Equations, UT Austin, May 25-29, 2015.

X Americas Conference on Nonlinear Analysis and Differential Equations, Buenos Aires, Argentina, Course Lecturer. February 9-13, 2015.

The 5th International Conference on Scientific Computing and Partial Differential Equations (SCPDE14), Hong Kong Baptist University (HKBU), December 8-12, 2014.

Mathematical and Computational Aspects of Materials Science, minisymposium of the SIAM Activity group on Mathematical Aspects of Materials Science, MRS Fall Meeting, Boston. Invited presentation. November 30–December 5, 2014.

Annual Meeting of KSIAM (Korean SIAM), Jeju (Korea), November 20-23, 2014.

Variational Modeling in Solid Mechanics, Univ. Udine (Italy). Invited presentation. September 22-24, 2014.

PIRE Workshop on Atomistic and Multi-Scale Models of Materials, University of Warwick, United Kingdom, September 15-18, 2014.

Trends in Non-Linear Analysis, IST Lisbon, Portugal, July 31 - August 1, 2014.

Eighth European Conference on Elliptic and Parabolic Problems, Gaeta (Italy), May 25–30, 2014.

Calculus of Variations and Optimization, a conference on the occasion of the 60th birthday of Giuseppe Buttazzo, Pisa, May 21-23, 2014.

2014 SIAM UKIE Annual Meeting, University College London (UK), January 9, 2014.

Mathematics and Mechanics in the Physical Sciences: A Tribute to James Serrin, Minneapolis, November 14-16, 2013.

Calculus of Variations Day, University of Évora, July 29, 2013.

Mathematics and Mechanics in the search for New Materials, in celebration of Richard James' 60th birthday, Banff International Research Station, July 14-19, 2013.

Variational Views in Mechanics and Materials (V2M2), Pavia (Italy), June 24-26, 2013.

Calculus of Variations and Differential Equations, EPFL (Lausanne, Switzerland), June 10-12, 2013.

Workshop on Industrial and Applied Mathematics, Beijing (China), May 10, 2013.

2013 Joint Mathematics Meetings, San Diego, January 9-12, 2013.

NCTS Workshop on Theoretical and Computational Challenges on PDEs, National Center for Theoretical Sciences (NCTS), Hsinchu, Taiwan, R.O.C., December 13-15, 2012.

2012 Annual Meeting of the Mathematical Society of the Republic of China, National Chiao Tung University, Hsinchu, Plenary speaker. December 7 to 9, 2012.

Variational Models and Methods for Evolution, Levico (Trento, Italy), September 10-12, 2012.

Geometric Partial Differential Equations, Centro De Giorgi of Pisa (Pisa, Italy), September 10-14, 2012.

Variational Problems with Multiple Scales, Otranto (Italy), June 6-8, 2012.

SIAM Conference on Imaging Science, Philadelphia, May 20-22, 2012.

Singularities in Physical Systems and the Calculus of Variations, minisymposium held at the *SIAM Conference on Analysis of Partial Differential Equations*, San Diego, November 14-17, 2011.

Variational Methods and Applications, minisymposium held at the *SIAM Conference on Analysis of Partial Differential Equations*, San Diego, November 14-17, 2011.

Mathematical Theory and Simulation of Phase Transitions, Beijing (China), November 7-11, 2011.

Annual Convention of the German Math Society, Cologne (Germany). Plenary Speaker, September 19-22, 2011.

Multiscale Phenomena in Calculus of Variations and Inverse Problems minisymposium, ICIAM 2011, Vancouver (Canada), July 18-22, 2011.

Theoretical and Numerical Aspects in Variational-PDE Methods for Solving Inverse Problems in Imaging Sciences, minisymposium, ICIAM 2011, Vancouver (Canada), July 18-22, 2011.

Mathematical Fluid Mechanics and Biomedical Applications, Azores (Portugal), May 31-June 4, 2011.

Mathematical Challenges for Sustainability, Rutgers, November 15-17, 2010.

Applied and Numerical Analysis, a conference in honor of Michel Chipot's 60th birthday, Institute for Mathematics of the University of Zürich, September 30, 2010.

A Conference on Highly Oscillatory Problems sponsored by European Science Foundation, Isaac Newton Institute, Cambridge. Plenary Speaker, September 13-17, 2010.

Second Workshop on Thin Structures, Istituto Piccole Ancelle di Cristo Re, Naples, Italy, September 9-11, 2010.

Istituto Nazionale di Alta Matematica (INdAM), Sicily, Italy, June 4, 2010.

Vector-valued mappings and systems of PDE's, Rome (INdAM, Istituto Nazionale di Alta Matematica), May 17-21, 2010.

NSF MPS Energy Workshop, March 15, 2010.

SIAM Conference on Analysis of PDEs, minisymposium on *Analysis of Phase-Field Models: From geometry and the materials sciences to image analysis and processing*, Miami, Florida, December 7-9, 2009.

SIAM Conference on Analysis of PDEs, minisymposium on *Variational Methods in Materials Science*, Miami, Florida, December 7-9, 2009.

US-China-Workshop on Nanostructured Materials for Global Energy and Environmental Challenges, Suzhou City, China, 2009.

Session on Partial Differential Equations, 3rd Latin American Congress of Mathematicians, Santiago (Chile), August 31-September 4, 2009.

Workshop in Challenges and Advances in Computational Materials Simulations and Design, Institute for Mathematical Sciences (IMS) at the National University of Singapore (NUS), July 20-24, 2009.

Workshop on Asymptotic Analysis in the Calculus of Variations and PDEs, PIMS Vancouver, UBC, July 6-10, 2009.

Workshop on Applied Mathematics, Basque Center for Applied Mathematics (BCAM) Bilbao (Spain), July 2-4, 2009.

Workshop on Mathematical Aspects of Imaging, Modelling and Visualization in Multiscale Biology, ICES (Institute for Computational, Engineering and Sciences), U. Texas (Austin), March 31-April 4, 2009.

Workshop on Nonlinear Analysis, Mathematical Sciences Institute (MSI), The Australian National University, Canberra (Australia), March 18-19, 2009.

South-West Analysis Meeting, Bath, January 2009.

Minisymposium on Using Mechanics to Discover Materials in honor of R. James, 45th Annual Meeting of SES held at the University of Illinois at Urbana-Champaign, October 12-15, 2008.

Calculus of Variations and its Applications: from Engineering to Economy, Lisbon (Portugal), September 2008.

Annual SIAM Meeting, San Diego, July 7-11, 2008.

Minisymposium on Microstructures, Micromechanics, and Structured Deformations, 3rd Canadian Conference on Nonlinear Solid Mechanics, Toronto, June 25-29, 2008.

SIAM Conference on Mathematical Aspects of Materials Science, Philadelphia, May 11-14, 2008.

Workshop on New Trends in Calculus of Variations and Mass Transport, CNA, Carnegie Mellon University, March 13-15, 2008.

Workshop on Variational Methods for Nonlinear PDE and their Applications, Technion, Haifa, Israel, March 5-10, 2008.

US-Chile Workshops: New Developments in Partial Differential Equations II, Santiago, Chile, January 2008.

SIAM Conference on Analysis of Partial Differential Equations (PD07), Minisymposium of on *Recent Trends in Calculus of Variations*, Kohn and Serfaty org., Mesa, Arizona, December 10-12, 2007.

Mathematical Aspects of Materials Science, minisymposium ICIAM Zurich, July 16-20, 2007.

New Trends in Partial Differential Equations and Calculus of Variations, Cortona, May 6-12, 2007.

Mathematical Aspects of Continuum Physics: Analysis, Computation, and Modelling, 2006 Winter Meeting of the Canadian Mathematical Society, Toronto, December 9-11, 2006.

Special Session on Calculus of Variations 2005 Fall AMS Central Sectional Meeting, University of Nebraska-Lincoln, October 12-13, 2006.

Conference on Variational Problems and Materials Science, Centro De Giorgi, Pisa, October 8-14, 2006.

Hot Topics Workshop on Negative Index Materials, IMA, October 2-4, 2006.

Plenary talk at the *Satellite Conference Calculus of Variations and PDE: challenges and applications*, associated with the ICM2006, August 16-19, 2006.

CIM Workshop on Mathematics and Chemistry, Lisbon, July 19-21, 2006.

Classical and Advanced Theories of Thin Structures: Mechanical and Mathematical Aspects (course), Udine, Italy, June 5-9, 2006.

Women in Mathematics: the legacy of Ladyzhenskaya and Oleinik, MSRI, May 18-20, 2006.

Fifth GAMM-Seminar on Microstructures, University Duisburg-Essen, Germany, January 13-14, 2006.

Workshop on Thin Structures, Naples, September 15-17, 2005.

Americas VI meeting on Non Linear Analysis and Differential Equations, Santiago, Chile, January 17-21, 2005.

Joint Mathematics Meeting, AMS, Atlanta, January 5-8, 2005.

SIAM Activities Group on Analysis of Partial Differential Equations, Houston, December 6-8, 2004.

Trends in the Calculus of Variations, U. Parma, September 15 - 18, 2004.

Conference in Honor of J. P. Carvalho Dias 60th Birthday, Lisbon, September 8, 9, 2004.

Variational Problems in Materials Science, SISSA, September 6-9, 2004.

CNA Conference in Honor of Mort Gurtin's 70th Birthday, Pittsburgh, June 26-28, 2004.

Calculus of Variations, Oberwolfach, June 13-19, 2004.

Differential Equations and Control Theory, AMS Meeting at Ohio University, March 26-27, 2004.

Third GAMM-Seminar on Microstructures, U. Stuttgart, Germany, January 8-10, 2004.

New Challenges in Applied Mathematics, Castro-Urdiales, September 1-5, 2003.

Multiple Scale Systems-Modeling, Analysis and Numerics, Oberwolfach, July 27-August 2, 2003.

Calculus of Variations and Optimization, Luminy, June 2003.

Non-Linear PDEs: Theory and Applications, Madeira, June 27-29, 2003.

US/EU Meeting on Phase Transitions in Crystals and TMR Annual Meeting, University of Minnesota, April 10-12, 2003.

Workshop on Partial Differential Equations, Inverse Problems and Non-Linear Analysis, Centro de Modelamiento Matemático (CMM), Facultad de Ciencias Físicas y Matemáticas, Universidad de Chile, January 13-19, 2003.

Calculus of Variation, Oberwolfach, June 30 - July 6, 2002.

AMS-UMI Meeting, Pisa, June 12-16, 2002.

Mathematical Methods for Materials Science, Bressanone, Italy, December 13-15, 2001.

The Mathematics of Ennio De Giorgi, Pisa, October 24-27, 2001.

Midwest PDE Seminar, Madison, September 29-30, 2001.

Variational Methods for Discontinuous Structures, Como, July 4-6, 2001.

Phase Transitions, Oberwolfach, April 30 - May 5, 2001.

Society for Natural Philosophy, Berkeley, September 28-October 1, 2000.

Multiscale Problems in Science and Technology. Challenges to Mathematical Analysis and Perspectives, Dubrovnik, 3-9 September 2000.

Third European Congress of Mathematics, Barcelona, July 2000.

Calculus of Variations, Oberwolfach, July 2-8, 2000.

Year 2000 International Conference on Dynamical Systems and Differential Equations, Kennesaw State University, May 18-21, 2000.

Northwestern Centennial PDE Conference, Northwestern University, March 11, 2000.

Phase Transitions and Interfaces in Evolution Equations: Analysis, Control, and Approximation, Santa Margherita Ligure, Italy, February 8-12, 2000.

Mathematics and its Role in Civilization, Macau, China, January 2000.

Nonlinear Partial Differential Equations and Applications, Lisbon, Portugal, October 1999.

Differential Equations and Calculus of Variations, Isola d'Elba, Italy, October 25-29, 1999.

ICIAM 99, the Fourth International Conference on Industrial and Applied Mathematics, Edinburgh, Scotland, July 1999.

Shape Optimization and Related Topics, CIRM Luminy (Marseille), June, 21-25, 1999.

Fourth Mississippi State Conference in Differential Equations and Computational Simulations, May 21-22, 1999.

Seventh International Symposium on Plasticity, Cancun, January 5-1, 1999.

MRS Fall Meeting, Interaction of Phase and Defect Microstructures in Metallic Alloys, Boston (MA, USA), November 30-December 4, 1998.

AMS Meeting, State College (PA, USA). Invited Address, October 24-25, 1998.

Society for Natural Philosophy, Carnegie Mellon University, October 10-12, 1998.

SIAM Annual Meeting, University of Toronto (Canada). Invited Address, July 13-17, 1998.

Calculus of Variations, Oberwolfach (Germany), July 5-11, 1998.

Journées Michel Artola, Bordeaux (France), November 6-7, 1997.

AMS Meeting, Atlanta (Georgia), Invited Address, October 10-12, 1997.

Second Euroconference and International Symposium on Material Instabilities, Aristotle University of Thessaloniki (Greece), August 31- September 5, 1997.

Mathematical Continuum Mechanics, Oberwolfach (Germany), June 22-28, 1997.

The Mumford-Shah Conjecture and Related Problems, Cortona (Italy), May 26-30, 1997.

International Conference on Applied Analysis, Lisbon (Portugal), February 26 - March 1, 1997.

Calculus of Variations, Oberwolfach (Germany), July 7-13, 1996.

Nonconvex Optimization Évora/96, University of Évora (Portugal), June 23-27, 1996.

AMS Meeting, Courant Institute, New York, April 13-14, 1996.

AMS-TMS Materials International Congress, Cleveland, Ohio, October 30- November 2, 1995.

Phase Transitions, Composite Materials and Microstructure, IMA; Minneapolis, Minnesota, September 18-22, 1995.

ICIAM, Hamburg, July 3-7, 1995.

Calculus of Variations and Nonlinear Elasticity, Cortona (Italy), June 12-16, 1995.

Eurhomogenization, Nice (France), June 6-10, 1995.

Mathematical Models in Phase Transitions, Oberwolfach (Germany), May 14-20, 1995.

Variational Methods for Discontinuous Structures, Como (Italy), September 8-10, 1994.

Symposium on Trends in Applications of Mathematics to Mechanics, Lisbon (Portugal), July 23-30, 1994.

Motion by Mean Curvature and Related Topics, Trento (Italy), June 27-July 2, 1994.

European Conference on Elliptic and Parabolic Problems, Pont-à-Moussons (France), June 13-17, 1994.

SIAM Conference on Emerging Issues in Mathematics and Computation from the Materials Sciences, Pittsburgh, April 18-20, 1994.

Three Rivers Applied Colloquium, Carnegie Mellon University, Pittsburgh, April 9-10, 1994.

Arkansas Spring Lectures in Mathematical Sciences, University of Arkansas, March 31-April 2, 1994.

Smart Structures and Materials SPIE conference, Orlando, Florida, 13-18 February, 1994.

Calculus of Variations, Homogenization and Continuum Mechanics, CIRM Marseille-Luminy (France), June 21-25, 1993.

Metz Days on Homogenization and Oscillations, Metz,(France), June 7-8, 1993.

Calculus of Variations and Nonlinear Elasticity, Cortona (Italy), May 24-28, 1993.

The Winter Annual Meeting of the American Society of Mechanical Engineers, Anaheim, California, November 8-13, 1992.

Surface tension and movement by mean curvature, Trento (Italy), July 20-24, 1992.

Continuum models for the microstructure of crystals, Heriot-Watt University, Edinburgh (G.B), June 8-13, 1992.

Thirty fifth Meeting of the Society for Natural Philosophy, Partial Differential Equations and Mechanics, Southern Illinois University at Carbondale, November 1, 2, 3, 1991.

868th AMS Meeting, special session on Phase Transitions and/or Front Propagation, Temple University, Philadelphia, PA, October 12-13, 1991.

Singuläre Störungsrechnung, Oberwolfach (Germany), June 9-15, 1991.

Thermomechanics of Materials, Padova (Italy), June 4-7, 1991.x

Calculus of Variations and Nonlinear Elasticity, Cortona (Italy), May 27-31, 1991.

Microstructure and Phase transitions, IMA, November 12-16, 1990.

Calculus of Variations and Nonlinear Material Behavior, Carnegie Mellon University, November 1-4, 1990.

PDE Concentration Period, MSRI, Berkeley, Oct 1-10, 1990.

Calculus of Variations, Elasticity and Crystals, Trento (Italy), December 11-15, 1989.

NSF-CBMS Conference on *Weak Convergence methods in nonlinear PDEs*, Loyola University of Chicago, June 27-July 1, 1988.

The mathematical Analysis of Material Microstructure, Cornell University, June 15-18, 1988.

International Conference on Nonlinear elliptic and parabolic problems, University of Nancy I (France), March 14-18, 1988.

First International Conference on Industrial and Applied Mathematics, Cité des Sciences et de l'Industrie, Paris, 29-July 3, 1987.

Non-Classical Continuum Mechanics: Abstract Techniques and Applications, Durham (G.B), July 2-12, 1986.

Elasticity Theory, Mathematisches Forschungsinstitut, Oberwolfach (R.F.A), April 14-19, 1986.

Material Instabilities and Partial Differential Equations, Heriot-Watt University, Edinburgh (G.B), March 24-25, 1986.

ORGANIZING AND SCIENTIFIC COMMITTEES OF MINI-SYMPOSIA, SUMMER SCHOOLS, WINTER SCHOOLS, WORKSHOPS, AND CONFERENCES:

Calculus of Variations in Sobolev Spaces and Applications, Banff International Research Station (Alberta, Canada), July 18 - 23, 2027.

Frontiers of Mathematical and Computational Aspects of Materials Science, October 12-14, 2026, Chairperson.

17th International Conference on Free Boundary Problems: Theory and Applications, Humbolt University (Berlin, Germany), September 7 - 11, 2026. Program Committee.

ICM 2026, Philadelphia. Local Organizing Committee.

14th Americas Conference on Differential Equations and Nonlinear Analysis (14th A-DENA), University of Western Ontario in London, Ontario (Canada), August 3-7, 2026.

Fourth International Conference on Applications of Mathematics to Nonlinear Sciences (AMNS-2026), organized by the Association of Nepalese Mathematicians in America (ANMA), Nepal Mathematical Society (NMS) and Tribhuvan University, Kathmandu (Nepal), May 28-31, 2026. Scientific Committee.

Conference on Calculus of Variations and applications, CIRM (France), January 12-16, 2026.

Frontiers in Applied Analysis, Carnegie Mellon University, June 3-6, 2025.

Frontiers of the Calculus of Variations, Samos (Greece), September 16-20, 2024. Co-organizer.

Advances in Variational Methods and Applications, special session of the AMS-UMI Joint conference, Palermo (Italy), July 23-26, 2024, Co-organizer with Micol Amar, Giovanni Leoni and Elvira Zappale.

Conference in Memory of Jan Malý, Bedlewo Center (Poland), June 10-16, 2024. Scientific Board.

Advances in Variational Methods and Applications to Materials, Minisymposia, 2024 SIAM Conference on Mathematical Aspects of Materials Science, May 19-23, 2024, Pittsburgh.

Current Challenges in Complex Materials: Modeling and Analysis, Hausdorff Research Institute for Mathematics, Bonn (Germany), January 9-13, 2023.

Beyond Elasticity: Advances and Research Challenges, CIRM Luminy (France), May 16-20, 2022.

Advances in Variational Methods and Applications to Materials and Machine Learning, Minisymposium, 2022 SIAM Annual Meeting, July 11-15, 2022, David L. Lawrence Convention Center, Pittsburgh.

SIAM Conference on Mathematical Aspects of Materials Science (MS21), Minisymposium on "Geometric Flows Arising in Problems from Materials Science", and Minisymposium on "Soft Materials: Liquid Crystals and Beyond". Basque Center of Applied Mathematics, Bilbao (Spain), May 24-29, 2021.

ONEPAS Webinar: The Mathematics of Thin Structures, April-May, 2021.

Workshop on Mathematical and Computational Materials Science, The Institute for Mathematical and Statistical Innovation (IMSI), University of Chicago, February 15-19, 2021.

Modeling of Crystalline Interfaces and Thin Film Structures: a Joint Mathematics-Physics Symposium, Erwin Schrödinger International Institute for Mathematics and Physics (ESI), Vienna (Austria), November 11-15, 2019.

Global Portuguese Mathematicians, University of Porto, Portugal, June 24-26, 2019.

Workshop on Mathematical Models for Pattern Formation, CNA (CMU), March 8-10, 2019.

KSU/AMLCI-CMU/CNA Applied Mathematics Symposium on Advanced Materials, Kent State University, February 9-10, 2019.

Scientific Program Committee, Ninth International Congress of Industrial and Applied Mathematics (ICIAM 2019), Valencia, Spain.

Abel in Pittsburgh, Carnegie Mellon University, Pittsburgh, January 11, 2019

A Conference in Memory of Jim Greenberg, Center for Nonlinear Analysis, Carnegie Mellon University, Pittsburgh, November 27, 2018.

Minisymposium on Variational Methods in Material Sciences, 2018 SIAM Conference on Mathematical Aspects of Materials Science (MS18), Portland, Oregon, July 9-13, 2018.

Workshop on Topics in the Calculus of Variations: Recent Advances and New Trends, BIRS, Banff (Canada), May 20-25, 2018.

Multiscale Modeling Theory and Computation, An International Conference Honoring Professor Mitchell Luskin on the Occasion of his 65th Birthday, University of Minnesota, Minneapolis, September 23-25, 2017.

Program Committee of the 2nd Mathematical Congress of the Americas, MCA 2017, Montréal, Canada, July 23-27, 2017.

A Conference on Applied Analysis on the Occasion of the 75th Birthday of David Kinderlehrer, CNA (CMU), June 18-20, 2016.

PIRE-CNA Summer School on New Frontiers in Nonlinear Analysis for Materials, CNA (CMU), June 2-10, 2016.

International Workshop on Calculus of Variations and its Applications, on the Occasion of Luisa Mascarenhas' 65th Birthday, Lisbon (Portugal), December 17-19, 2015.

Mathematics and Mechanics in the 22nd Century: Seven Decades and Counting... , conference in honor of Jerry Ericksen's 90th Birthday, Eugene, Oregon, October 23-25, 2015.

PIRE-MPI Workshop on From Grain Boundaries to Stochastic Homogenization, MPI-MiS, Leipzig (Germany), July 20-13, 2015.

Scientific Committee of the X-Americas Conference on Nonlinear Analysis and Differential Equations, Buenos Aires (Argentina), January 12-16, 2015.

Scientific Committee of the 2013 conference of the Real Sociedad Matemática Española, CEDYA-2013, Castellón (Spain), September 9-13, 2013.

2013 CNA Summer School on Topics in Nonlinear PDEs and Calculus of Variations, and Applications in Materials Science, CNA (CMU), May 30-June 7, 2013.

CompIMAGE 2012 Conference-Computational Modeling of Objects Presented in Images: Fundamentals, Methods and Applications, Rome (Italy), September 5-7, 2012.

ICIAM 2011 Minisymposium on Modern Methods and Applications of the Calculus of Variations, Vancouver (Canada), July 18-22, 2011.

Scientific Committee of the IV Congreso Latinoamericano de Matematicos (IV CLAM), Cordoba (Argentina), August 6-10, 2012.

2010 SIAM Annual Meeting (AN10), minisymposium on Calculus of Variation, Pittsburgh, July 12-16, 2010.

2010 CNA Summer School on New Vistas in Image Processing and PDEs, JCNA (CMU), June 7-12, 2010.

SIAM Meeting on Mathematical Aspects of Materials Science, minisymposium on *Variational Methods in Materials Science*, Philadelphia, May 23-26, 2010.

Steering Committee of the NSF MPS Energy Workshop, NSF, March 14-15, 2010.

SIAM Conference on Analysis of Partial Differential Equations 09, minisymposium on *Variational Methods and Nonlinear PDE in Image Processing*, Miami, Florida, December 7-9, 2009.

2008 CNA Summer School on Contemporary Topics in Nonlinear PDEs, CNA (CMU), May 29-June 7, 2008.

Selection committee for The John von Neumann Lecture (SIAM)

Organizing Committee of the 2008 SIAM Conference on Mathematical Aspects of Materials Science, Philadelphia, May 11-14, 2008.

2008 SIAM Conference on Mathematical Aspects of Materials Science, co-organizer of the Minisymposium on *Variational Models for Advanced Materials*, Philadelphia

Organizing committee of the US-Chile workshops (Pittsburgh 2007 and Chile 2008 (<http://www.math.cmu.edu/cna/cmuchile>)).

SIAM Conference on Analysis of Partial Differential Equations (PD07), co-organizer of the Minisymposium on *Energy Based Approaches to Nonlinear PDEs*, Mesa (Az), December 10-12, 2007.

Organizing committee of the Conference in Honor of David Kinderlehrer's 65th Birthday, CNA (CMU), October 19-21, 2006.

2006 CNA Summer School on Probabilistic and Analytical Perspectives on Contemporary PDEs, CNA (CMU), May 29-June 6, 2006.

Organizing committee of the Workshop on the Calculus of Variations in 2005, CNA (CMU), October 17-19, 2005.

Organizing Committee of the conference Frontiers of Applied Analysis, CNA (CMU), September 8-10, 2005.

Member of the ICIAM Lagrange Prize Subcommittee, to be awarded at the ICIAM Congress in Zurich, 2007.

Subcommittee for the Lagrange Prize, ICIAM Congress in Zurich, 2007.

Second SIAM Activity Group Conference on Analysis of Partial Differential Equations (APDE06), Boston, Co-Chair, July 9-12, 2006.

International Congress of Applied Mathematics, Center for Mathematical Modelling (CMM), Universidad de Chile, in Santiago de Chile (Chile), Steering Committee, 13-17 March, 2006.

Organizing Committee of the 2004 SIAM Conference on Mathematical Aspects of Materials Science, 2004.

Session of the International AMS-UMI Conference, Pisa (Italy), on Contemporary Developments in Partial Differential Equations and in the Calculus of Variations, June 12-16, 2002.

2001 CNA Summer School-Multiscale Problems in Nonlinear Analysis, CNA (CMU), 2001.

Organizing Committee of Conference in Honor of James Greenberg 60th Birthday, CNA (CMU), 2001.

Organizing Committee of Mathematical Issues in the Sciences: an Exploratory Workshop (CMU), CNA (CMU), 2000.

Organizing Committee of the STAMM 2000-Symposium on Trends in Applications of Mathematics to Mechanics, Lisbon (Portugal), 2000.

Organizing Committee of the NEE/Macau '98 - Nonlinear Evolution Equations and Applications (Macau), 1998.

Special Session on Recent Developments in Partial Differential Equations, Calculus of Variations, and Applications to Problems in Materials Science, the AMS meeting in Atlanta, Georgia, October 10-12, 1997.

Organizing Committee of the SIAM Meeting on Mathematical/Computational Aspects of Materials Science, Philadelphia, May 1997.