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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:

- 2022 ICM 2022, St. Petersburg (Russia), July 6-14, 2022. Invited Lecture
- 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–present 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  $A$ -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 Fullbright Fellowship

## ACADEMIC POSITIONS:

- 2018-2028 Kavčič-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)  
Association for Women in Mathematics (AWM)  
European Mathematical Society (EMS)  
International Society for the Interaction of Mechanics and Mathematics  
Society for Industrial and Applied Mathematics (SIAM)  
Sociedade Portuguesa de Matemática  
Society for Natural Philosophy

## EDITORIAL BOARDS:

- Acta Applicandae Mathematica, Springer  
Advances in Calculus of Variations, de Gruyter, Berlin- New York  
Advances in Discrete and Continuous Models, Springer  
Archive for Rational Mechanics and Analysis  
BCAM-Springer Briefs  
CIM Series in Mathematical Sciences (CIM-MS), Springer-Verlag  
2020-2025 CAMS, Communications of the AMS, Senior Editor  
Communications on Pure and Applied Analysis, AIMS  
De Gruyter Series in Applied and Numerical Mathematics

ESAIM: COCV (European Series in Pure and Applied Mathematics, Control, Optimization and Calculus of Variations), SMAI, Associate Editor

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)  
M<sup>3</sup>AS, 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
- 2018-2023 SIAM Classics in Applied Mathematics  
SIAM Journal on Mathematical Analysis
- 2011-2016 SIAM Review (SIREV, Survey and Review Section)

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## SELECTED COMMITTEES AND PANELS:

- 2021-2024 European Mathematical Society (EMS) Meetings Committee
- 2021-2024 Conselho Geral da Universidade de Coimbra (Portugal)
- 2021-2023 Selection Committee for the 2023 Bôcher Prize, AMS
- 2021-2023 2023 ICIAM Prize Subcommittee
- 2021-2022 SIAM Fellows Selection Committee
- 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
- 2020-2022 Governing Member of the Arrangements Committee of the Society for Natural Philosophy
- 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
- 2020 Variational Methods for Predicting Complex Phenomena in Engineering Structures and Materials, DFG Review Panel (Germany)
- 2019-2022 AMS Prize Oversight Committee
- 2019-2022 ICM Structure Committee, International Mathematical Union
- 2019-2020 Study Committee for Illustrating the Impact of the Mathematical Sciences, National Academies of Sciences, Engineering, and Medicine
- 2019-2020 SIAM SIAG/APDE, Chair
- 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)
- 2017-2020 Alan T. Waterman (ATW) Award Committee, NSF
- 2017-2020 AMS Fellows Selection Committee
- 2017-2020 Mathematics Research Communities Advisory Board, AMS
- 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
- 2016-2024 Scientific Advisory Board, Faculty of Mathematics, University of Vienna (Austria)
- 2014-2023 IMA Board of Governors. Chair in 2019
- 2014-2022 AAAS, Member-at-Large of the Section of Mathematics
- 2014-2023 Scientific Advisory Board of the Interdisciplinary Center for Scientific Computing (IWR), Heidelberg (Germany)
- 2008-2022 SIAM Committee on Science Policy

## Graduate Students and Postdoctoral Fellows

Supervisor of 17 Ph.D. students, and mentor of 42 postdocs.

## PUBLICATIONS IN JOURNALS:

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