Curriculum vitae

PERSONAL DETAILS

Family name, First name: Cuoco, Elena
ORCID: 0000-0002-6528-3449
Researcher ID: I-8789-2012
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HIGHLIGHTS

Full Professor, University of Bologna (from Oct 2024)
Head of Data Science Office at European Gravitational Observatory (EGO), Pisa (2018–Sep 2024)
ESCAPE: Coordinator of the Test Science Project (TSP) "Extreme Universe"; former Chair of the ESCAPE General Assembly
EOSC-Future: Test-Science Project Coordinator (Extreme Universe / ESCAPE synergies within EOSC)
EuCAIF: Member of the Management Board
Main Proposer and Action Chair of COST Action CA17137 (G2Net)
Co-chair of LIGO/Virgo Machine Learning group (2018–2023)

- **Education and key qualifications**
  Italian National Habilitation as Full Professor (2019) and as Professor (2013) in Experimental Physics of Fundamental Interactions
  1994 – 1997 PhD in Physics, University of Pisa; 01/07/1998 Awarded a PhD (National level)
  1993 Master Degree in Physics, Physics Department, University of Pisa, Italy

- **Current Position**
  2018 – 30/09/2024 Head of European Gravitational Observatory Data Science Office, Pisa, Italy
  01/10/2024 – Full Professor at Department of Physics and Astronomy, Alma Mater Studiorum – Università di Bologna, Italy

- **Previous position**
  2004 – 2024 Applied physicists at European Gravitational Observatory, Pisa, Italy
  2018 – 2024 Head of European Gravitational Observatory Data Science Office, Pisa, Italy
  2018 – 2024 Scuola Normale Superiore Associate Faculty, Pisa, Italy,
  2016 Short term visiting scientist, Astronomy & Astrophysics, University of Valencia, ES
  2016 Short term visiting scientist, Physics & Astronomy, Glasgoe University, UK
  2014 SUPA distinguished visiting scientist, Physics & Astronomy, Glasgow University, UK
  2001 – 2004 Fixed term researcher, Istituto Nazionale di Fisica Nucleare, Firenze, Italy

Peer recognition

As a member of the LVK collaboration, I have received awards in recognition of the groundbreaking discovery of gravitational waves. Concurrently, my international leadership in gravitational wave research and advanced signal analysis techniques has been widely acknowledged. As a result, I have been invited to serve on numerous boards and editorial boards, and have been frequently invited to speak at conferences as a plenary speaker or convener, or giving lectures to PhD training schools. For brevity, I have included only the most recent invitations.

Fellowship and awards

2016 Special Breakthrough prize in fundamental physics (shared with the authors of the GW discovery paper)
2016 Gruber Cosmology Prize (shared with the authors of the GW discovery paper)
1999 – 2001 Osservatorio Astronomico di Arcetri, Firenze, Italy, PostDoc Fellow

Invited Presentations at International Conferences and Workshops

2024 EuCAIFCon 2024, Amsterdam (NL)
2024 CoCoNuT (Core Collapse with "Nu" (=new) Technology) Meeting, Valencia, ES
2024 EuCAIFCon24 European AI for Fundamental Physics Conference, Amsterdam, NL
2024 GRASS GRAvitational - wave Science&technology Symposia (GRASS), Padova, IT

2024 RICAP24 Roma International Conference on Astroparticle Physics, Roma, IT

2023 Invited speaker at TEDx Putignano, Italy, 2023

2023 European Astronomical Society Annual Meeting (S4), Krakow, PL

2023 Invitation-only workshop on "Machine learning enabled searches for new physics in astrophysical data", IFPU, Trieste, IT

2023 Track convener for Track 9, on "Artificial Intelligence and Machine Learning", CHEP2023 conference, USA (declined)

2022 Supernovae in GW detection era, Swinburne-University, Melbourne, AU

2022 IAIFI Workshop Summer Workshop, Boston, USA (declined)

2022 IAUS368 Machine Learning in Astronomy: Possibilities and Pitfalls, Busan (declined)

2022 SciOps: Artificial Intelligence for Science and Operations in Astronomy, Munich, DE

2022 Applications of AI to gravitational wave science, Geneve, SH

2022 The 30th International Symposium on Lepton Photon Interactions at High Energies, Manchester, UK

2021 IPAM: Mathematical and Computational Challenges in the Era of Gravitational Wave Astronomy, long term program, UCLA, USA

2021 IPAM Workshop IV: Big Data in multimessenger Astrophysics, UCLA, USA

2021 Second Gravi-Gamma Workshop,Volterra, IT, Virtual

2021 11th Iberian Workshop, Valencia, ES, Virtual

2021 Seminar, University of Geneve, CH, Virtual

2021 Seminar, RIT, CCRG, New York, USA, Virtual

2021 GWDC and ADACS, ML workshop, OzGrav, AU, Virtual

2020 Enabling novel real-time multimessenger studies Berlin, DE, Virtual

2020 Manchester Particle Physics Seminars, Colloquia and Meetings, UK

2020 Centre for Doctoral Training in Data Intensive Science, UCL, London, UK

2019 GARR Workshop, Roma, IT

2019 Hammer & Nails, Weizmann Institute of Science, Israel

2019 1st Real Time Analysis Workshop, Institut Pascal, FR

2019 XVI Software for Nuclear, Subnuclear and Applied Physics, Alghero, IT

2019 Seminar at CERN, Geneve, CH

2019 Computational Challenge in GW Astronomy, IPAM, LA, USA

2018 SOPHIA, Springboard for Artificial Intelligence, FR

2018 3rd ASTERICS-OBELICS workshop, Cambridge, UK

2018 EUSPIC02018, Special Session on Advances in GW Signal Processing and Data Analysis, Roma, IT

2018 Fifteenth Marcel Grossmann Meeting, Roma, IT

2018 Connecting The Dots 2018, Seattle, USA

2017 2nd ASTERICS-OBELICS workshop, 16-19 October, Barcelona, ES

2016 11th Workshop on Science with the New generation of High Energy Gamma-ray Experiments, 18-21 October, Pisa, IT

2016 XXII SIGRAV Conference, A Century of General Relativity. In the era of Gravitational Waves. 12-18 September, Cefalú, IT

2009 Gravitational Waves parallel session in Marcel Grossmann Meeting 12, July, Paris, FR

2006 Gravitational Waves parallel session in Marcel Grossmann Meeting 11 2006, July, Berlin, DE

Institutional responsibilities

2024 – present Member of EuCAIF Management Board

2024 – Member of the Joint ECFA-NuPECC-APPEC working packages WP2 and WP4

2018 – 2023 LVK Machine learning group co-chair

2021 – 2025 CTAO Scientific and Technical Advisory Committee member

2021 – 2025 Einstein Telescope Data Analysis division co-chair

2019 – 2021 Chair of General Assembly for ESCAPE EU project

2019 – present ESCAPE Test Science Project (TSP) Coordinator: "Extreme Universe"

2021 – present EOSC-Future Test-Science Project Coordinator (Extreme Universe / ESCAPE-related activities)

2018 – 2023 Action Chair and Grant Holder scientific representative for COST CA17137
2014 – 2018 GraWIToN FP7-Marie Curie Actions.ID 606176 Scientific coordinator
2015 European Gravitational Observatory, Italy, Outreach coordinator
2008 – 2014 Virgo Noise Analysis Group coordinator

Reviewing activities

Editorial Board member for Machine Learning: Science and Technology, IOP, MDPI (Signals), Loop frontiers (Efficient AI in Particle Physics and Astrophysics),

Reviewer for APS, IOP, MDPI, Nature, MNRAS, IEEE, AAS, AdP,

2024 Independent Evaluation Committee (IEC) member for the 1st OSCARS (Horizon Europe No. 101129751) call

2024 Master degree jury member for Department of Physics, Coimbra, PT

2024 PhD committee member for Astronomy and Astrophysics Department, Valencia, ES

2023 Selection committee member for INFN n. 25634/2023 selection

2023 PhD committee member for Physics Department, Pisa, Italy

2022 PhD committee member for IFAE, Barcelona, ES

2022 Concorso per Dipartimento Eccellenza SNS, Selection Committee member

2022 PhD committee member for Dipartimento di Ingegneria, Roma La Sapienza

2020 Astroparticle Physics European Consortium (APPEC) task force reviewer

2019 Concorso per Dipartimento Eccellenza SNS, Selection Committee member

2014 2018 Scientific Advisory Board, GraWIToN FP7 Project ID: 606176

2017 EGO PostDoc fellowship program, Italy, Member of selection committee

2017 Department of Astronomy and Astrophysics, University of Valencia, ES, PhD Committee member and substitute chair

MEMBERSHIPS OF SCIENTIFIC SOCIETIES

2015 – 2018 Member of Board of Directors of SIGRAV (Societá Italiana di Relativitá Generale e Fisica della Gravitazione)

ADDITIONAL INFORMATION

Organization of International Conferences

2025 EuCAIFCon 2025, Cagliari (IT)

2024 BIRS conference, November 17 – 22, 2024 (organizer and SOC member)

2024 EuCAIF conference, 30 April to 3 May 2024 (organizer and SOC member)

2022 Machine Learning in GW search: g2net next challenges, September, EGO, IT (chair)

2022 EuCAPT workshop, Rome, Italy 15-17 June (SOC member)

2021 2nd symposium AISIS 2021, 11-15 October (SOC member), Geneve (CH)

2021 BIRS conference, 14-19 November, Oaxaca, MX (organizer and SOC member)

2021 CBMI Special Session CoBLA, June 28-30, Lille, FR (SOC member)

2021 GWMull, 28-30 July, Mull, Scotland, UK (SOC member)

2021 EAS2021 conference Special Session SS14, 30 June (SOC member)

2021 Innovative Workflow in Astro and Particle physics 8-12 March (Organizer and SOC chair)

2021 EAS Special Session SS14, 28 June – 2 July 2021, Leiden, NL (SOC member)

2021 Innovative Workflow in Astro and Particle physics 8-12 March (Organizer and SOC chair)

2019 1st G2net Conference 14-16 January, Pisa, Italy (Organizer and Chair)

2018 Computational Challenges in Gravitational Wave Astronomy, Institute for Pure and Applied Mathematics, UCLA January 28 - February 1, 2019 (Organizer)

Other contributions to the research community The innovative character of my research has placed me at the forefront of international, interdisciplinary efforts in fundamental physics. I contribute to community-building activities at the interface of AI and fundamental physics and I serve on the Management Board of the European Coalition for AI in Fundamental Physics (EuCAIF): https://www.eucaif.org/.

Major contributions to early careers of excellent researchers During my years at a research institute with no formal teaching duties, opportunities for structured supervision were limited. Nevertheless, I have actively contributed to training and mentorship through the supervision and coordi-

nation of early-career researchers, including:

2016 – Supervision and mentoring of postdoctoral researchers, PhD, bachelor, master and Erasmus students

2014 – 2018 Scientific Coordinator of the GraWIToN project, overseeing the training programme and career development of 13 ESR PhD students

2001 – Tutor for several internship students

Teaching actvities

2025/2026 B8284 - GRAVITATIONAL WAVE PHYSICS, Laurea Magistrale in Physics (cod. 6695), University of Bologna

2024/2025 28000 - FISICA GENERALE T-2,Corso: Laurea in Ingegneria dell'energia elettrica (cod. 6675), University of Bologna

2024 BND graduate school 2024, Belgium, Lecturer

2024 Physics Colloquium at University of Milano, IT

2023 Lectures at Physics Department, Tor Vergata University, Roma, Italy

2023 Lectures at Masterclass in Big Data within Science and Industry University of Milano-Bicocca, IT

2023 4th g2net Training school, Thessaloniki, Greece, Lecturer

2020 Frontiers of Cosmology Lectures, SNS, Italy, Lecturer

2019 Data Science School in Braga, Portugal, Lecturer

2018 Lectures at Computer Science Department, Bari University, at Data Science Ph.D Colloquium, Pisa University, at Physics Department, Tor Vergata University, Roma, Italy

2010 and 2011 VESF School, EGO, Italy, Lecturer