Luca Amendola (Prof. Dr.)

- **Personal data and contacts**

Born in Rome (Italy), Sept. 10, 1963, Italian nationality
Institute of Theoretical Physics, University of Heidelberg
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ORCID 0000-0002-0835-233X,
Publication metrics (from Inspires as of 28.10.24): 187 published papers with $<$10 authors; 205 in total; 21250 (25170 according to Google Scholar) citations; h-index 65 (70 according to Google Scholar).
Updated publications:Inspire, Google Scholar
Updated metrics: Standardized citation indicator

- **Employment and education**

2009: Professor (W3) at the Institute of Theoretical Physics, University of Heidelberg
2004-2009: Associate Astronomer at the Astronomical Observatory of Rome, Italian National Institute of Astrophysics.
1994-2004: Researcher at Osservatorio Astronomico di Roma.
1999: Visiting scientist at Dartmouth College, NH, USA
1994: Research associate at Fermi National Accelerator Laboratory, USA
1994: PhD in Astronomy, University of Rome *La Sapienza*, Italy
1989: Master (*Laurea cum laude*) in Physics, University of Rome, Italy.

- **Advisory boards, main collaborations, fellowships, and memberships**

Member of the Euclid Collaboration; co-lead of the Euclid Theory Working Group (2009 -2021)
Member of the Einstein telescope collaboration (2023-)
Speaker for the TransRegio collaboration "The Dark Universe", 2016-2018
Fellowship of the Japan Society for the Promotion of Science (JSPS) 2022 (two-months visit to Tokyo, Waseda University)
Fellowship of the Japan Society for the Promotion of Science (JSPS) 2006 (two-months visit to Maebashi, Gunma College)
Referee for *The Physical Review*, *The Physical Review Letters*, *The Astrophysical Journal*, *Astronomy and Astrophysics*,*MNRAS, Journal for Cosmology and Astroparticle Physics*, *Physics Letters B*, *Europhysics Letters*.
Editor of *Physics of the Dark Universe*, Elsevier (2013-2021).
Chair of the PE9 panel of the ERC-CoG (2021-).
Physics Panel for the Ireland Science Foundation - Frontiers Programme, (2004-06); Advisor for the Research Council of Norway (2015-2018); Advisory Panel for the DFG (2005-06); Advisor for the Swiss National Science Foundation (2006); Member of the International Astronomical Union (1997-); NASA JDEM-SWG panel on figure of merit for dark energy space missions (2008); Advisor for the ERC grants (2019-); Panel of the Independent Research Fund Denmark DFF (2021-).

- **Student supervision**

2009- PhD primary advisor for twelve students at the University of Heidelberg.
2009- Advisor of Master dissertations for 35 students at the University of Heidelberg.
1996-2010 Advisor for two PhD students at the University of Rome Tor Vergata and University of Roma Tre and of 26 undergraduate dissertations ("Laurea" or "Laurea Specialistica") of the University of Rome "La Sapienza" , University "Roma Tre" and other universities.

- **Teaching**

2009- I teach every semester 16-, 30-, or 60-hour courses on General Relativity, Cosmology, Statistical Physics, Statistical Methods, Observational Cosmology, Advanced Cosmology, Classical Mechanics, Introduction to Mathematica, Cosmological Large scale structure at the Heidelberg University
1996-2009 I taught almost every year a course on Cosmology at the University of Roma Tre or Roma La Sapienza

- **Recent international courses at postgraduate level**

December 2024: Invited lecturer at XVII Tonale Winter School, Tonale, Italy
September 2024: IMPRS School New Opportunities to test cosmology, Heidelberg, Germany
March 2023: Verão Quântico School, Ubu (Brazil) (4 lectures)
November 2022: XXXIII Canary Islands Winter School of Astrophysics 33rd, IAC, Tenerife (Spain) (4 lectures)
April 2021: CIRM, Theory of Gravitation and Variation in Cosmology - Théorie de la gravitation et variations en cosmologie, 12 - 16 April 2021 (1 lecture, online)
September 2018: Course on "Fundamental Science with Euclid" at Federal University of Vitoria, ES, (3 hours)
June 2018: Course "The Dark Side of the Universe", Int. School of Space Science, GSSI L'Aquila, Italy (three lectures)
October 2017: Schule für Astroteilchenphysik 2017 Helmholtz-Allianz für Astroteilchenphysik and ECAP, Obertrubach-Bärnfels (6 hours)
February 2017: XIX Swieca Summer School, Maresias, Brazil (8 hours)
December 2016: X Tonale Winter School, Tonale, Italy (8 hours)
September 2016: 3rd José Plínio Baptista School, Pedra Azul, Brazil (5 hours)
January 2016: International Graduate School, Tehran, Iran (6 hours)
February 2015: Verão Quântico School, João Pessoa, Paraíba, Brazil (3 hours)

- **Recent invited talks**

Seminar at University of Parma, Italy, 24.10.2024
Seminar at Pontificia Universidad Católica de Valparaíso, Chile, 20.08.2024
Seminar at ICTS, Bangalore, India, 11.03.2024
Seminar at Indian Inst. of Astrophysics, Bangalore, India, 07.03.2024
Seminar at University of Science and Technology of China "Early Universe & AliCPT Forum" (online) 24.07.2023
Seminar at University of Oslo (Norway) 09.06.2023
Seminar at University of Barcelona (Spain) 09.03.2023
Seminar at Lorentz Institute, Leiden (Netherlands) 13.01.2023
"5th International Conference on Particle Physics and Astrophysics (ICPPA-2020)", 5-9 Oct. 2020 (online)
"6th Korea-Japan Workshop on Dark Energy", KMI Nagoya (Japan) 3-5 Dec, 2019
"Philosophy of Dark Energy", UC Irvine, USA, 08-10.03.2019
"II Workshop on Current Challenges in Cosmology", Bogotà (Colombia), 29.10 to 02.11.2018
"XXXIX Encontro Nacional de Física de Partículas e Campos", Campos do Jordao, Brazil, 24-28 Sept. 2018
"New Frontiers - Particles and Cosmology", Singapore 5-8 March 2018
"TransRegio 33 The Dark Universe Meeting 2017", 9-13 October Munich 2017
"Euclid Consortium Meeting", London, UK, June 2017

- **Articles and Books**

Coauthor of more than 190 refereed articles, more than 18000 citations, Spires h-index 62 (21200 citations and h =65 according to Google Scholar).
L. Amendola, "L'algoritmo del mondo", Il Mulino (2022), science outreach
L. Amendola, "L'altra faccia dell'Universo", Il Mulino (2018), science outreach
L. Amendola, S. Tsujikawa "Dark Energy. Theory and Observations", Cambridge University Press 2010 (revised edition 2015).
L. Amendola, "Il cielo infinito", Sperling & Kupfer (2000), science outreach.

- **Recent grants**

2023-2023 DAAD 57683126 *Can Dark Matter Clump In Early Universe and Form PBH?*, PI 9.8ke

2022-2024 DFG AM 293/3-1 *Cosmology without assuming a cosmology: data analysis in the Euclid era,* PI, 152ke for a PostDoc position for two years

2019-2021 DFG AM 293/2-1 *Challenges to the standard cosmological model in recent cosmological observations,* PI, 144ke for a PostDoc position for two years

2016-2018 DAAD 57213713 *The nature of the dark side of the Universe*, co-PI, 8ke bilateral exchange with Portugal

2018-2020 DAAD 57394560 *On the role of higher spin fields and p-forms on inflation and dark energy,* co-PI, 17.5ke bilateral exchange with Colombia

2020-2022 DAAD 57518956 *Data analysis and model testing in the Era of precision cosmology*, co-PI, 20ke, bilateral exchange with Brazil (unused because of pandemics)

2010-2018 DFG TransRegio TR33 *The Dark Universe*, collaboration Bonn-Heidelberg-Munich, co-PI 2012-2016, Speaker in 2016-2018, 14Me in total (33 co-PIs)

2014-2017 Excellence Initiative *Gravity on the largest scales,* co-PI, collaboration with University of Geneva, Imperial College and University College (London), 57ke

- **Research interests**

Theoretical cosmology. Models of dark energy and gravity beyond Einstein. Tests of gravity.
Cosmological data analysis. Constraints from Hubble diagram, microwave background, redshift catalogs, formation and evolution of large scale structure, lensing,
Large scale structure. Models of galaxy formation, non-linear effects, non-gaussian statistics.
Emerging cosmological probes. Redshift drift, peculiar velocity fields, anisotropic and inhomogeneous models, real-time cosmology, peculiar acceleration
Gravitational waves. Emission and propagation of GWs in theories beyond Einstein.
Cosmic microwave background. Parameter estimation, non-gaussianity, Boltzmann codes.
Theories of inflation.
Models of dark matter.