Lauro MOSCARDINI

- PERSONAL INFORMATION
Lauro Moscardini, born in Reggio nell'Emilia on 30/10/1961. Italian nationality.
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- ABSTRACT
The scientific activity has been mainly focused on the theoretical study of the formation of cosmic structures and its implications for the cosmological models.

Main research interests: determination of the cosmological parameters using the properties of galaxy clusters (counts, clustering, density profiles, topology, velocity field, dipoles); high-resolution hydrodynamical simulations of galaxy clusters (thermal structure, X-ray properties, Sunyaev-Zel'dovich effect, dynamical models); gravitational lensing from galaxy clusters (statistics of gravitational arcs, optimal filtering, weak lensing); cosmological modelling (extended studies of non-Gaussian models and tilted/antitilted models; alternative dark matter models; constraints on quintessence models; cosmic degeneracy); theoretical modelling of the clustering evolution of cosmic structures and constraints on the cosmological parameters from the comparison with observational data (high-redshift galaxies, Lyman-break galaxies, galaxy clusters observed in optical, X-ray and millimetric bands, quasars); implementation of N-body and hydrodynamical codes (Particle-Mesh, Piecewise Parabolic Method); models for the perturbation evolution (non-linear approximations, eulerian theory, high-order moments, biasing).

- HIGHLIGHTS
Full Professor, Department of Physics and Astronomy, University of Bologna
532 refereed papers in international journals (SAO/NASA ADS as of **07/2026**)

Citations **(as of 07/2026)**
SAO/NASA ADS: total 28218; H index 76
Web of Science: total: 19293; H index 68
Scopus: total 18137 H index 65
Google Scholar: total 33774; H index 92
~20 seminars/colloquia/invited talk in international institutions/meetings in the last 10 years.

- EDUCATION
1989: PhD, Astronomy, University of Bologna;
1986: Laurea in Astronomia, University of Bologna;

- CURRENT POSITION
Since 09/2016: Full Professor, University of Bologna

- PREVIOUS POSITIONS:
2002-2016: Associate Professor, University of Bologna
1991-2001: Researcher, University of Padova
1990-1991: Postdoc, University of Sussex

- ROLES INSIDE THE EUCLID COLLABORATION
Founder of the ESA mission Euclid
Coordinator of the SWG on Galaxy Clusters for the ESA mission Euclid from the beginning until November 2023
Member of the Steering Committee of the ESA project DUNE (then merged in Euclid)
Coordinator of the DUNE WG on Simulations

- PRESENT PARTICIPATION TO OTHER MAJOR COLLABORATIONS
Member of the KiDS, COSMOS-Web, Einstein Telescope, LISA collaborations.

- COMPETITIVE GRANTS:
ASI n. 2024-19.HH.0: "Attività scientifica per la missione EUCLID - Fase E". Coordinator of WP 6300 "Science with Galaxy Clusters"
PRIN MUR 2022: 2022 20227RNLY3 "The concordance cosmological model: stress-tests with galaxy clusters", Local coordinator
ASI n.2018-23-HH.0: "Attività scientifica per la missione EUCLID - Fase D". Coordinator WP4-6XB Science with Galaxy Clusters"
PRIN MIUR 2017: Zooming into Dark Matter and proto-galaxies with massive lensing clusters. Local Coordinator
ASI n.I/023/12/0: "Attività rekative alla fase B2/c per la missione EUCLID ". Coordinator WP4-1C
PRIN INAF 2012: The Universe in a box: multi-scale simulations of cosmic structures. Local Coordinator
FP7-PEOPLE-2011-IEF: Simulating the Dark Universe. Scientific Coordinator;
FP7-ERC-2010-StG_20091028: Gravitational Lensing as a Cosmological Probe. Coordinator contact;
PRIN INAF 2009: Towards an Italian network for computational cosmology. Local Coordinator

ASI 2007/08 call inside the contract I/088/06/0 "High Energy Astrophysics": Modelling the properties of baryon gas in the large scale structure of the universe. Principal Investigator;
PRIN MIUR 2001: Clusters and groups of galaxies: the connection between dark matter and barbs. Local Coordinator;
PI of the italian-german projects funded inside the VIGONI call 2005 and 2009;
PI of the italian-american project funded by the Italian minister for foreign affairs in 2008.

- COMMISSIONS OF TRUSTS:
Member of the GeV02 for the National Evaluation of Research VQR 2020-2024 for the National Agency ANVUR
Member of the Committee for the National Scientific Qualification SC 02/C1 2018-2021 for the National Agency ANVUR
Member of the GeV02 for the National Evaluation of Research VQR 2011-2014 for the National Agency ANVUR
Member of the GeV02 for the National Evaluation of Research VQR 2004-2010 for the National Agency ANVUR
Member of the INAF/CINECA, ISCRA and PRACE TAC for the assignment of supercomputing time
Member of the Editorial Board of Mem. S.A.I.T.
Referee for the most important astrophysical journals (ApJ, MNRAS, A&A, Phys. Rev D., Astroparticle Physics, Galaxies)
Referee for international grant applications (ERC, NATO, UK, France, Switzerland, Poland, Belgium, Austria)
Referee for national grant applications (PRIN, FIRB, SIR, Levi Montalcini, CIVR, ANVUR, many universities)
Member of several panels for permanent and temporary positions
Referees for different PhD theses (Spain, France, Germany, UK, Italy)

- TEACHING ACTIVITIES:
Courses on Cosmology and Numerical methods for Astronomy at the University of Bologna
Courses on Cosmology, Statistical Astronomy, Astrophysics at the University of Padova
Course on Astrophysics at the University of Pavia
Lectures for PhD students at different national and international schools

- SUPERVISION OF UNDERGRADUATE AND GRADUATE STUDENTS, POSTDOCTORAL FELLOWS:
Supervisor/co-supervisor of 151 Master students;
Supervisor/co-supervisor of 26 PhD students;
Supervisor of 3 postdoctoral fellows per year on average.

- INSTITUTIONAL RESPONSABILITIES:
Director of the First and Second cycle degrees in Astronomy/Astrophysics at UNIBO from 2016 until 2022
Director of the PhD School in Astrophysics at UNIBO from 2007 until 2015
Coordinator of the Astrophysics Division at DIFA UNIBO from 2022
Member of the Executive Board of the Open Physics Hub at DIFA, UNIBO
Member of the board of the Centre of Excellence "Science and application of advanced computational paradigms" at the University of Padova, funded by MIUR in the period 2001-2004
Responsible for 'High Education', Istituto Nazionale di Astrofisica (INAF) from 2006 until 2012

- ORGANIZATION OF SCIENTIFIC MEETINGS AND SCHOOLS:
Scientific Secretary of the National School in Astrophysics F. Lucchin
Scientific Secretary of the National School in Astroparticles (for PhD students)
Member of the Organizing Committee of different National and International meetings and Schools.