

# Stefano Borgani

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## Education

**1992 Ph.D.** in Astronomy; International School for Advanced Studies (SISSA-ISAS), Trieste, Italy;  
Advisor: Prof. G.F.R. Ellis

**1990 Master** in Astrophysics; International School for Advanced Studies (SISSA-ISAS), Trieste, Italy;  
Advisor: Prof. G.F.R. Ellis

**1988 Graduation** in Physics; Department of Physics, University of Perugia, Italy; Advisor: Prof. S.A. Bonometto

## Positions

**Since January 2013:** Full Professor, Department of Physics, University of Trieste, Trieste (Italy)

**January 2010-December 2012:** Associate Professor, Department of Physics, University of Trieste, Trieste (Italy)

**2002-2009:** Associate Professor, Department of Astronomy, University of Trieste, Trieste (Italy)

**1991-2002:** staff researcher at the National Institute of Nuclear Physics, Perugia (Italy)

**1992-1995:** research associate, International School for Advanced Studies (SISSA), Trieste (Italy)

**July 1993:** visiting scientist at the Department of Astronomy – Queen Mary & Westfield College

**June-July 1996:** visiting scientist at the Department of Physics and Astronomy, University of California Santa Cruz (USA)

**January-February 2000:** visiting scientist at the European Southern Observatory (ESO, Garching, Germany)

**August 2017:** visiting scientist at the Tuorla Astronomical Observatory (Turku, Finland)

## Research Interests

Theoretical cosmology: formation of large-scale structure in the Universe; cosmology with clusters of galaxies; formation and evolution of galaxies and galaxy clusters; high-performance computing and simulations of cosmic structure formation; statistical properties of the large-scale galaxy distribution; high-energy physics motivated models of Dark Matter.

## Scientific activity<sup>1</sup> (as of December 2023)

- Author of 316 articles on refereed journal (41 as first author), among which 8 review articles published in Physics Reports, Nature, two in Annual Review of Astronomy and Astrophysics, Space Science Review and Advanced Science Letters
- Total citation number: above 27,000
- “H index” of 82
- Above 60 invited talks at Conferences and Schools

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<sup>1</sup> Source: NASA-ADS: <https://ui.adsabs.harvard.edu>

- Above 60 invited colloquia at different Institutes

### Academic and functional duties

- Deputy Director of the Department of Astronomy – University of Trieste (2004-2007)
- President of the “Commissione Paritetica Docenti Studenti” of the Department of Physics of the University of Trieste (since November 2018)
- Coordinator of the teaching for the “Curriculum in Astrophysics” within the Master in Physics at the University of Trieste (2009-2011)
- Member of the “Commissione Programmazione” of the Department of Physics of the University of Trieste (since March 2012)
- Member of the “Board of Teachers” for the PhD in Physics at the University of Trieste (since November 2004)
- Member of the Steering Committee of the Interdepartmental Center for Computational Sciences of the University of Trieste (2004-2013)
- Representative for the University of Trieste in the Assembly of the Foundation of the “National Center for HPC, Data Science and Quantum Computing” founded within the PNRR (since July 2022)

### Professional Service

- Member of the Board of Directors (Consiglio di Amministrazione) of the National Institute of Astrophysics (INAF; from Jan. 2020 to Dec. 2023)
- Director of INAF – Astronomical Observatory of Trieste (2012-2017)
- Member of the Steering Committee of “Consortium for Physics” of Trieste (2012-2017)
- Member of the Steering Committee of the Institute for Fundamental Physics of the Universe (Trieste, since September 2018)
- Deputy Director of the Institute for Fundamental Physics of the Universe (Trieste, since November 2018)
- Italian representative in the Steering Committee of the ASTROSIM (Simulations in Astrophysics) Network, funded by the European Science Foundation, 2006-2011.
- Member of the steering committee (“Giunta”) of the Inter-departmental Centre for Computational Science (CISC) at the University of Trieste (2004-2013).
- Chair of the organization of more than 10 Conferences
- Member of the Scientific Organizing Committee of above 50 conferences
- Member of the INAF-CINECA Scientific Committee in the period 2001-2005.
- Member of the INAF-CINECA Steering Committee in the period 2005-2010.
- Coordinator of the Workpackage on “Theory of Cosmic Structure Formation” within the “Cosmology Study” of the Italian Space Agency (2006-2009).
- Member of the “Astrophysics” Working Group of the Italian Space Agency (2016).

### Roles within the Euclid Consortium

- Member of the Euclid Consortium since 2010
- Co-Coordinator of the Organization Unit LE3 within the Science Ground Segment for the EUCLID mission (October 2010-April 2014)
- Co-coordinator of WP-9 (“Simulations of Galaxy Clusters”) within the CoG-SWG (since 2019)
- Co-lead of the pre-launch Key Project KP-CL-3 (“Precision simulations for cluster cosmology”)

- Member of the Euclid Consortium Publication Group Science (ECPG-S; since April 2024)

## Evaluation of research

- Member of the College of Expert Reviewers of the European Science Foundation (since December 2018)
- Referee for The Astrophysical Journal, Monthly Notices of the Royal Astronomical Society, Astronomy & Astrophysics, Nature, Physical Review B, Physical Review Letters, Review of Modern Physics.
- Member of the Chandra Peer Review Panel (cycle A03) and of the XMM Peer Review Panel (cycle A03, A04, A20, A21).
- Member of the Theory/Simulations Panel for the “High-Energy Astrophysics Study” of the Italian Space Agency (2006-2008).
- Member of the Data Analysis Panel for the Cosmic Structure Formation Study of the Italian Space Agency (2006-2009).
- Referee for several national funding agencies (Netherland, France, Germany, USA, Israel, Saudi Arabia).
- Referee for assignment of Tenured Professor Positions for Michigan State University, University of Southern California (Pasadena, USA), University of Alabama (Huntsville, USA), Stony Borrk University (NY, USA), Academia Sinica (ASIAA, Taiwan), University of Victoria (Canada), University of Southampton (UK).
- Referee for PRIN-MIUR/2005 and PRIN-MIUR/2008 projects.
- Referee for “Comitato di Indirizzo per la Valutazione della Ricerca” (CIVR).
- Referee for FP7 and H2020 ERC Grants
- Referee for supercomputing projects within the “Partnership for Advanced Computing in Europe” (PRACE).
- Referee for “Agenzia Nazionale per la Valutazione dell’Università e della Ricerca” (ANVUR).
- Member of the evaluation panel for the Heidelberg Institute for Theoretical Studies (HITS; July 2017)
- Referee for research project submitted to “Lazio Innova” (2017)
- Member of the Scientific User Selection Panel for the EC HPC-Europe3 program (since Sept. 2017)

## Grants

- Local coordinator of the INFN FA21 project in “Commissione IV INFN” (1991-1999)
- Local coordinator of the INFN PD21 project in “Commissione IV INFN” (2000-2012)
- National coordinator of the PRIN-INAF 2006 project “Observing and Modelling the Properties of Diffuse Baryons in Clusters of Galaxies”.
- National coordinator of the PRIN-MIUR 2007 project “The Cosmic Cycle of Baryons”.
- Coordinator of the node in Trieste for the COSMOCOMP International Training Network, funded by the EC within the Framework Program 7.
- Coordinator of the node in Trieste for the LACEGAL “Inter-Regional Staff Exchange Scheme” Network, funded by the EC within the Framework Program 7.
- National coordinator of the PRIN-MIUR 2009 project “Tracing the growth of structures in the Universe: from the high-redshift cosmic web to galaxy clusters”.
- National coordinator of the PRIN-MIUR 2012 project “Evolution of cosmic baryons:

- astrophysical effects and cosmic growth”.
- Local coordinator of the PRIN-MIUR 2015 project “Cosmology and Fundamental Physics: illuminating the Dark Universe with Euclid”.
- Local coordinator of the PRIN-SKA project “FORECaST”, funded by INAF (207-2019)
- Local coordinator of the ASI project “Galaxy clusters in X-rays” (2017-2019)
- Co-PI of the MIUR-DAAD Italy-Germany bilateral project “The Universe in a Box” (2018-2019)
- National coordinator of the PRIN 2022 PNRR project “*Space-based cosmology with Euclid: the role of High-Performance Computing*” (Dec. 2023 – Nov. 2025)

## Supervision and evaluation of students

- Supervisor for the Graduation Thesis of 4 students
- Supervisor of about 30 Master students
- Supervisor of about 30 PhD students
- Member of committees for about 20 PhD final exams in Italy, Spain, Denmark and UK.

## Teaching activity

- Course of “Cosmology” for the graduation in Physics at the University of Perugia (from AY 1991/92 until AY 1997/98)
- Course of “Formation of Cosmic Structures” for the PhD in Physics at the University of Trieste (since AY 2000/2001)
- Course of “Physics of Galaxies” for the graduation in Physics (AY 2001/02)
- Course of “Galaxies and Systems of Galaxies for the Master degree in Astrophysics at the University of Trieste (from AY 2002/03 to AY 2009-2010)
- Course of “Numerical Methods for Astrophysics” for the Master degree in Astrophysics at the University of Trieste (from AY 2002/03 to AY 2009-2010)
- Course of “Cosmology-II” for the Master degree in Physics at the University of Trieste (since AY 2011-2012)
- Course of “Radiative Processes” for the Master degree in Physics at the University of Trieste (since A.Y. 2018-2019)
- Course of “Physics-I” for the “Laurea Triennale” in Chemistry at the University of Trieste (AY 2013/14 and 2014/15)
- Course of “General Physics” for the “Laurea Triennale” in Earth Sciences at the University of Trieste (since AY 2015/16)
- Course of “Formation of Cosmic Structures” for the PhD degree in Astroparticle Physics at SISSA in Trieste (from AY 2008/09 to 2010/2011)
- Visiting professor at the University of Ljubljana – Teacher of the “Astronomy II” course (May 2017)

Trieste, 20/09/2024

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