

PERSONAL INFORMATION

Mauro Roncarelli

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Sex Male | Date of birth Feb 3 1978 | Nationality Italian

JOB APPLIED FOR

Researcher at DIFA, University of Bologna

WORK EXPERIENCE

Nov 2017 – Oct 2018

Postdoctoral Researcher

University of Bologna (Italy)

- AdR, supervisor Prof. F. Brighenti
- Main project(s): kSZ effect of the LSS, ICM kinematics with *Athena/X-IFU*
- *Euclid* consortium member
- *Athena* X-ray Observatory collaboration (with INAF/OAS)

Oct 2015 – Sep 2017

Postdoctoral Researcher

University of Bologna (Italy), with contribution from INAF/OABo (Italy)

- AdR, supervisor Prof. F. Brighenti, INAF collaborator S.Ettori
- Main project(s): ICM kinematics with *Athena/X-IFU*, kSZ effect of the LSS
- *Euclid* consortium member
- LSST-Dark Energy Science Collaboration core team for INAF/OABo
- *Athena* X-ray Observatory collaboration (with INAF/OABo)

Oct 2012 – Sep 2015

Postdoctoral Researcher

University of Bologna (Italy)

- AdR, supervisor Prof. L. Moscardini
- Main project(s): *Euclid* cluster survey, galaxy cluster detection
- *Euclid* consortium member

Oct 2010 – Sep 2012

Postdoctoral Researcher

University of Bologna (Italy)

- AdR, supervisor Prof. L. Moscardini
- Main project(s): The WHIM and the diffuse X-ray background
- External collaborator of the *eROSITA* team

Jul 2007 – Jun 2010

Postdoctoral Researcher

Centre d'Étude Spatiales des Rayonnements (CESR), Université Paul Sabatier, Toulouse (France)

- Supervisor: Dr. E. Pointecouteau
- Main project(s): IR and X-ray emission of galaxy clusters
- *Planck* team member

Jan 2007 – Jun 2007

Postdoctoral Researcher

University of Bologna (Italy)

- AdR, supervisor Prof. L. Moscardini
- Main project(s): Effect of non-Gaussianities in the LSS
- *EDGE* team member

EDUCATION

Jan 2004 – Apr 2007

PhD in Astronomy

University of Bologna (Italy), supervisor Prof. L. Moscardini

Thesis title: *"Modelling the signal of the cosmic web with hydrodynamical simulations"*

Visiting student:

- University of Miami (FL, USA), May-Jun 2005, supervisor Prof. M. Galeazzi
- Max Planck Institute for Astrophysics, Garching (Germany), *"Marco Polo"* fellow, Feb-Apr 2006, supervisor Dr. K. Dolag
- Main subjects: Cosmology, Large-Scale Structure, Numerical Simulations

Sep 1997 – Jul 2003

Degree "Laurea" in Astronomy, 110/110 *cum laude*

University of Bologna (Italy), supervisor Prof. L. Moscardini

Thesis title: *"Simulations of the large-scale structure of the Universe: maps of the X-ray emission and thermal Sunyaev-Zel'dovich effect"*

- Main subjects: Large-Scale Structure, Numerical Simulations

Sep 1992 – Jul 1997

High School Diploma

Liceo Scientifico Augusto Righi (Bologna, Italy)

POST-GRADUATE EDUCATION AND TRAINING

Schools of Astrophysics

▪ National (Italian) Schools of Astrophysics *"Francesco Lucchin"*

- *"Clusters of galaxies – Astrophysical plasmas"*, Trieste, Italy – Oct 2006
- *"Galactic dynamics – Active galactic nuclei"*, Bertinoro (FC), Italy – May 2006
- *"Wide field observational cosmology – Distance ladder"*, Sant'Agata sui due Golfi (NA), Italy – May 2005
- *"Cosmological parameters – Extrasolar planets"*, Asiago (VI), Italy – Sep 2004
- *"Gravitational lensing – Chaos and its astrophysical consequences"*, Bertinoro (FC), Italy – May 2004

▪ International Schools of Astrophysics

- Summer School *"Novicosmo 2005"*, Novigrad/Cittanova, Croatia – Sep 2005
- International School of Physics *"Enrico Fermi"*, Varenna (CO), Italy – Jul 2004

Computational and Technical Training

▪ Python course

- Programming, data analysis, data visualization with Python, University of Bologna, Italy – Nov 2017

▪ SIXTE Training Workshop

- Use and development of SIXTE, the official *Athena* simulation software, IRAP, Toulouse, France – Apr 2016

▪ Parallel Programming Summer School

- High-performance computing, code optimization, MPI, OpenMP, CINECA, Bologna Italy – Sep 2003

PERSONAL SKILLS

Mother tongue
Other languages

Italian

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C2	C2	C2
French	C2	C2	C2	C2	C1
Spanish	C2	C2	C2	C2	B2

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user

Computational Knowledge

- **Operative systems:** iOS, Unix, Linux, Windows
- **Programming languages:** Fortran90, IDL, Python, C++, LaTeX
 - Expert in code optimization
- **Parallel programming:** good knowledge of OpenMP and MPI

Communication Skills

- **Team work:** I have worked in several international research teams (see list below)
- **Talks:** I have experience in giving seminars and talks at workshops, congresses and outreach events (see list below)
- **Teaching:** I have been teaching Physics (**5yrs**) and Calculus (**4yrs**) at the University of Bologna (see detailed list below)
 - Preparation of written documents with exercises and solutions for the students
- **Tutoring:** I have been tutoring **4** master thesis projects (see list below)
- **Mediating skills:**
 - 2014-now: active member of the “Rete dei Precari della Ricerca e della Didattica dell’Università di Bologna”
 - 2016: non-voting member (“uditore”) of the “Giunta di Dipartimento” of the Physics and Astronomy Department at the University of Bologna
 - 2015-16: representative of postdocs in the “Consiglio di Dipartimento” of the Physics and Astronomy Department at the University of Bologna

Organisational / Managerial Skills

- **Projects:** PI of **6** approved projects in high-performance computing systems (see full list below)
- **Event organisation (local organizing committee)**
 - “The mass profiles of galaxy clusters from the core to the outskirts: the need for a multi-wavelength approach” conference, M. di Campiglio (TN), Italy – Mar 2013
 - “Hydrodynamical Simulations” workshop, Bologna, Italy – Jun 2012
 - “Whereabouts, Physical State and Metallicity of the Missing Baryons in the Local Universe” conference, Cervia (FC), Italy – May 2012
 - National School of Astrophysics “Francesco Lucchin”, Bertinoro (FC), Italy – Jun 2011
 - Organisation of the monthly “Extragalactic Astrophysics Meetings” at CESR, Toulouse, France – 2008
 - National School of Astrophysics “Francesco Lucchin”, Bertinoro (FC), Italy – May 2006

Job-related Skills

- **Refereeing papers:** referee for ApJ and MNRAS
- **Writing proposals**
 - PI of **6** approved calculus proposals (see list below)
 - Co-I of **14** approved calculus proposals
 - Co-I of **6** approved observational proposals (see list below)
 - Co-I of **1** rejected FIRB proposal
- **Outreach:** Contributed to several outreach events (see list below)
- **Observations at telescopes:** **4** nights at the Cassini telescope (152cm) of Loiano (BO), Italy

SCIENTIFIC ACTIVITY

Research Interests

- Theory: Cosmology: large-scale structure of the Universe, galaxy clusters, filaments, cosmic web
- Physical/emission processes: X-ray emission, SZ effect (thermal and kinematic), metal line emission/absorption
- Photometric surveys: detection of galaxy clusters
- Hydrodynamical simulations, numerical models, data analysis
- Galaxy evolution: star formation, chemical enrichment of the ICM

Research Projects and Proposals

- **Approved theoretical/numerical projects**
 - *"Tracing the Chemical and Thermodynamical Properties of the Intergalactic Medium"* (2011): **PI of the project**, awarded 22'000 CPU hours at the SP6 supercomputer at CINECA (Italy)
 - *"Scaling Relations in non-Standard Cosmologies"* (2012): **PI of the project**, awarded 20'000 CPU hours at the Fermi supercomputer at CINECA (Italy)
 - *"Effect of Neutrinos on Galaxy Clusters in a Λ -CDM Cosmology"* (2013): **PI of the project**, awarded 250'000 CPU hours at the Fermi and Eurora supercomputers at CINECA (Italy)
 - *"The kinetic SZ effect as a cosmological probe"* (2014): **PI of the project**, awarded 50'000 CPU hours at the Galileo supercomputer at CINECA (Italy)
 - *"The kinetic SZ effect as a cosmological probe (II)"* (2015): **PI of the project**, awarded 25'000 CPU hours at the Galileo supercomputer at CINECA (Italy)
 - *"The kinetic SZ effect as a cosmological probe (III)"* (2016): **PI of the project**, awarded 25'000 CPU hours at the Galileo supercomputer at CINECA (Italy)
 - *"DEMNUi: The clustering of large-scale structures in the presence of massive neutrinos"* (2013), Co-I, PI: C. Carbone, awarded 3'000'000 CPU hours at the Fermi supercomputer at Cineca (Italy)
 - Co-I of other **13** different high-performance computing projects awarded a total of more than 500'000 CPU hours
 - *"The Universe in a box: multi-scale simulations of cosmic structures"* (2013), Co-I, PI: G. Murante, PRIN-INAF, awarded 96'000 Euros
- **Approved observational proposals (as Co-I)**
 - *"Measuring the scatter in the calibration of the richness, M_{SZ} and M_{WL} relations with SZ-selected Planck galaxy clusters"* (2018), PI: M. Radovich, Telescope/instr.: OMEGAcam-VST, Obs. time: 5 hrs
 - *"Calibrating the richness, M_{SZ} and M_{WL} relations with SZ-selected Planck galaxy clusters: a bridge between KiDS and DES"* (2018), PI: M. Radovich, Telescope/instr.: OMEGAcam-VST, Obs. time: 3 hrs
 - *"Measuring the scatter in the calibration of the richness, M_{SZ} and M_{WL} relations with SZ-selected Planck galaxy clusters"* (2017), PI: M. Radovich, Telescope/instr.: OMEGAcam-VST, Obs. time: 16 hrs
 - *"Calibrating the richness, M_{SZ} and M_{WL} relations with SZ-selected Planck galaxy clusters: a bridge between KiDS and DES"* (2017), PI: M. Radovich, Telescope/instr.: OMEGAcam-VST, Obs. time: 16 hrs
 - *"The XMM-Newton Cluster Outskirts Project (X-COP)"* (2013), PI: D. Eckert, Telescope/instr.: XMM-Newton, Obs. time: 965 ks
 - *"Gas clumping in the outskirts of Hydra A and A2142"* (2011), PI: D. Eckert, Telescope/instr.: XMM-Newton, Obs. time: 200 ks

Achievements, Honours and Awards

- **Euclid Level 2 Contributor** awarded as **major contributor** of the *Euclid* project (2019): this status allows to **sign all Euclid publications** (key-projects and standard projects)
- **Nomination to the "Euclid Star Prize"** for the team work in the OU-LE3 Galaxy Clusters implementation work package (2018)
- **Maker and Developer of AMICO**, the galaxy cluster detection algorithm officially adopted by the *Euclid* collaboration and currently being implemented in the *Euclid* software pipeline. AMICO was selected (2017) as the **best algorithm** between 7 proposed by international teams, after being classified **1st** in a set of 4 performance competitions held by OU-LE3 Clusters of Galaxies implementation work package on mock *Euclid* data
- **"Marco Polo" Fellowship** funded by University of Bologna (2006), open to PhD students of several research fields, with research project proposed by the candidate
- **1st Classified** at the competition for the PhD fellowship (**3yrs**) at the University of Bologna (2003)

Memberships of International Scientific Collaborations

- 2011-now: Member of the **Euclid** Consortium (PI: Y. Mellier)
 - **Euclid Level 2 Contributor**, with **4.1 years of FTE (full time equivalent) activity** officially acknowledged (top 6% of ~2000 members, top 25 Italian)
 - OU-Level 3: Clusters of galaxies implementation work package (**1st FTE contributor**)
 - SWG: Clusters of galaxies
 - SWG: CMB/X cross correlations
 - OU-Level 3: External data work package
 - Maker and developer of **AMICO**, the galaxy clusters detection algorithm officially selected and implemented in the *Euclid* software pipeline
- 2016-now: Member of the **XMM Clusters Outskirts Project (X-COP)** collaboration (PI: D. Eckert)
 - Expert in hydrodynamical simulations (SPH)
 - Expert in X-ray emission simulations
- 2013-now: Member of the **Athena** X-ray observatory collaboration (PI: D. Barret, K. Nandra)
 - SWG 1.2: Clusters of galaxies
 - SWG 1.4 Missing baryons and warm-hot intergalactic medium
 - Testing and validation of SIXTE, the *Athena* official simulation software
- 2013-now: External collaborator of the **Kilo-Degree Survey (KiDS)** team (PI: J. T. A. De Jong)
 - WG: Clusters of galaxies
- 2017-18: Member of the **LSST** Dark-Energy science collaboration
 - WG: Clusters of galaxies
 - WG: Theory and joint probes
- 2010-12: External collaborator of the **eROSITA** team
 - WG: Galaxy clusters
- 2008-10: Member of the **Planck** team (HFI-associate)
 - WG5: Clusters and secondary anisotropies
- 2007-08: Member of the **EDGE** team
 - WG: Warm-Hot Intergalactic Medium
- 2006-07: Member of the **ESTREMO/WFXRT** team
 - WG: Warm-Hot Intergalactic Medium

Publications Summary(*)

All publications (full list in the annexes)

- Author of a total of **60** publications (**5** submitted)
 - **1124** citations
 - h-index: **18**

Refereed publications

- First author of **11** published papers
 - **288** citations
 - the three most cited:
 - **85** citations, Roncarelli et al 2006 (MNRAS, 373, 1339)
 - **44** citations, Roncarelli et al 2013 (MNRAS, 432, 3030)
 - **39** citations, Roncarelli et al. 2007 (MNRAS, 378, 1259)
 - first author h-index: **8**
- Main co-author (2nd-4th) of **10** published papers
 - **184** citations
- Co-author (>4th) of other **15** published papers
- Total: author of **36** published papers
 - **830** citations
 - h-index (refereed only): **16**

Submitted publications

- Co-author of **2** submitted papers (**1** as main co-author)
- Co-author as **Level 2 Contributor** of **3** *Euclid* papers submitted to the ECEB

(*) based on NASA-ADS database

International Conferences and Workshops

▪ International schools of astrophysics

- *"Dark Energy probes - Dynamical evolution of globular clusters"* (**LOC member**), Bertinoro (FC), Italy – May 8-13 2011
- *"Clusters of galaxies – Astrophysical plasmas"*, Trieste, Italy – Oct 2-6 2006
- *"Galactic dynamics – Active galactic nuclei"* (**LOC member**), Bertinoro (FC), Italy – May 7-12 2006
- Summer School *"Novicosmo 2005"*, Novigrad/Cittanova, Croatia – Sep 2005
- *"Wide field observational cosmology – Distance ladder"*, Sant'Agata sui due Golfi (NA), Italy – 8-13 May 2005
- *"Cosmological parameters – Extrasolar Planets"*, Asiago (VI), Italy – Sep 5-11 2004
- International School of Physics *"Enrico Fermi"*, Varenna (CO), Italy – Jul 6-16 2004
- *"Gravitational lensing – Chaos and its astrophysical consequences"*, Bertinoro (FC), Italy – May 16-21 2004

▪ Conferences and workshops

- *"Promoting the interaction around interacting galaxy clusters"*, University of Bologna, Italy – Oct 10-12 2018
- *"International TER Workshop"*, University of Copenhagen, Denmark – Sep 27 2018
- *"Convegno Nazionale Euclid Italia"*, ASI, Rome, Italy – Feb 5-7 2018
- *Euclid OU-LE3 Clusters Meeting*, IRAP, Toulouse, France – Oct 25-27 2017
- *"The X-ray Universe 2017"*, Rome, Italy – Jun 6-9 2017
- *"Cluster-I"* conference, Turin, Italy – Feb 27-Mar 1 2017
- *Euclid Consortium Meeting*, Lisbon, Portugal – May 30-Jun 3 2016
- *Euclid Clusters of Galaxies SWG Meeting*, Paris, France – Feb 1-3, 2016
- *Euclid OU-LE3 Meeting*, Milano, Italy – Jan 25-26, 2016
- *Euclid Consortium Meeting*, Geneva, Switzerland – Jun 8-12, 2015
- *"Building the Euclid Cluster Survey"*, Sesto/Sexten (BZ), Italy – Jul 7-11 2014
- *Euclid Consortium Meeting*, Marseille, France – May 5-9 2014
- *Euclid OU-LE3 Meeting Nice*, France – Dec 17-19 2013
- *"X-ray/SZ clusters"* workshop, Geneva, Switzerland – Nov 13-15, 2013
- *"The mass profile of galaxy clusters from the core to the outskirts: the need for a multi-wavelength approach"* (**LOC member**), Madonna di Campiglio (TN), Italy – Mar 18-22 2013
- *"Simulations of galaxy clusters for eROSITA"* workshop, Max Planck Institute for Extraterrestrial Physics, Garching, Germany – Jun 13 2012
- *"Hydrodynamical simulations meeting"* workshop (**LOC member**), University of Bologna, Italy – Jun 11-12 2012
- *"Whereabouts, Physical State and Metallicity of the Missing Baryons in the Local Universe"* conference (**LOC member**), Cervia (FC), Italy – May 27-30 2012
- *"Hydrodynamical simulations meeting"* workshop, Trieste, Italy – Jan 9-10 2012
- *"Cervia WHIM workshop"*, Cervia (FC), Italy – Jun 20-21 2011
- *"IXO science meeting: present status and future prospects of X-ray astronomy"*, Rome, Italy – Mar 14-16 2011
- *"Origin meeting"*, IASF Rome, Italy – Oct 4-7 2010
- *Planck-WG5 meeting*, IAS Paris, Italy – Sep 30-Oct 1 2009
- *Planck-WG5 meeting*, Bologna, Italy – Nov 4-6 2008
- *"The Warm and Hot Universe"*, New York, USA – May 7-9 2008
- *Planck-WG5 meeting*, IAS Paris, Italy – Dec 13-15 2007
- *"Extragalactic Astrophysics Workshop"*, Observatoire Midi Pyrénées, Toulouse, France – Nov 7 2007
- *"Tracing Cosmic Evolution with Clusters of Galaxies"*, Sesto (BZ), Italy – Jun 25-29 2007
- *ESTREMO/WFXRT general meeting*, Bologna, Italy – May 4-5 2006
- *ESTREMO/WFXRT meeting: WHIM Working Group*, Bologna, Italy – Mar 31 2006
- *"The SZ perspectives of the ALMA project"*, Trieste, Italy – Apr 13 2005
- *"Galaxy clusters general workshop"*, Bertinoro (FC), Italy – Oct 20-22 2004

Contributed Talks

▪ Congresses and workshops

- *"Italian astronomy, research and academia: precarity in a shrinking system"* (invited), International TER Workshop, University of Copenhagen, Denmark – Sep 2018
- *"OULE3 Clusters: galaxy clusters detection and beyond"* (presented by F. Bellagamba), Convegno Nazionale Euclid Italia, Rome, Italy – Feb 2018
- *"An end-to-end X-IFU simulator: constraints on ICM kinematics"*, The X-ray Universe 2017 conference, Rome, Italy – Jun 2017
- *"An end-to-end X-IFU simulator: constraints on ICM kinematics"*, Cluster-I meeting, University of Turin (TO), Italy – Feb 2017
- *"Cluster detection via optimal filtering of photometric data"* (invited, presented by F. Bellagamba), Euclid Clusters of Galaxies SWG Meeting, Paris, France – Feb 2016
- *"The Sunyaev-Zel'dovich effect(s) and non-standard cosmologies"* (invited), Postdoc days DIFA-OABO, Osservatorio Astronomico di Bologna, Italy – Feb 2014
- *"Overview of postdoc positions at INAF and DIFA"*, Introductory talk, Postdoc days DIFA-OABO, Osservatorio Astronomico di Bologna, Italy – Feb 2014
- *"Residual clumpiness: doubts and ideas"*, X-ray/SZ clusters meeting, Geneva, Switzerland – Nov 2013
- *"Large scale inhomogeneities in cluster outskirts: effect on mass estimates"*, Galaxy Cluster conference, Madonna di Campiglio (TN), Italy – Mar 2013
- *"Large-scale structure simulations and cluster catalogues for eRosita"* (invited), eRosita simulations workshop, Max Planck Institute for Extraterrestrial Physics, Garching, Germany – Jun 2012
- *"The effect of feedback on the emission properties of the WHIM"*, Missing Baryons Conference, Cervia, Italy – May 2012
- *"Simulations for WHIM and cluster outskirts"*, Hydrosim meeting, Trieste, Italy – Jan 2012
- *"Si.Li.Cone: a light-cone simulator and its applications to WHIM observations"*, Cervia WHIM workshop, Cervia, Italy – Jun 2011
- *"The missing baryons problem and the unresolved X-ray background: a view from simulations"*, Extragalactic Astrophysics Workshop, Observatoire Midi Pyrénées, Toulouse, France – Nov 2007
- *"The external regions of galaxy clusters in hydrodynamical simulations"*, National School of Astrophysics – Trieste, Italy – Oct 2006
- *"Detecting the warm-hot intergalactic medium in emission"*, ESTREMO/WFXRT meeting: WHIM working group, Bologna, Italy – May 2006
- *"First results in WHIM simulations"*, ESTREMO/WFXRT meeting: WHIM working group, Bologna, Italy – Mar 2006
- *"The WHIM in hydrodynamical simulations and prospects for observations"*, ESTREMO/WFXRT meeting: WHIM and mission opportunities, Rome, Italy – Jan 2006
- *"The cosmic web in cosmological hydrodynamical simulations"*, Galaxy clusters general workshop, Bertinoro (FC), Italy – Oct 2004
- *"X-ray emission and SZ effect of the LSS of the Universe from hydrodynamical simulations"*, National School of Astrophysics, Bertinoro (FC), Italy – May 2004

▪ Seminars and lectures

- *"The thermal SZ effect and galaxy clusters"* (invited), Lecture at the Department of Physics and Astronomy (DIFA), University of Bologna, Italy – Apr 2017
- *"The thermal SZ effect and galaxy clusters"* (invited), Lecture at the Department of Physics and Astronomy (DIFA), University of Bologna, Italy – Apr 2016
- *"The thermal SZ effect and galaxy clusters"* (invited), Lecture at the Department of Physics and Astronomy (DIFA), University of Bologna, Italy – May 2015
- *"The residual clumpiness of galaxy clusters: how to improve mass estimates"*, Department of Physics and Astronomy (DIFA), University of Bologna, Italy – Feb 2014
- *"Primordial non-Gaussianities in X-ray and SZ signals of galaxy clusters"*, Department of Astronomy, University of Bologna, Italy – Nov 2010
- *"Infrared properties of the SDSS clusters: constraints on intracluster dust"* (invited), University of Innsbruck, Austria – Jul 2010
- *"Constraining intracluster dust from the SDSS clusters"*, Max Planck Institute for Astrophysics, Garching, Germany – Jun 2010
- *"Modeling the signal of the cosmic web with hydrodynamical simulations"* (PhD Defense), Department of Astronomy, University of Bologna, Italy – Apr 2007
- *"Properties of the warm-hot intergalactic medium in cosmological hydrodynamical simulations"*, Max Planck Institute for Astrophysics, Garching, Germany – Mar 2006
- *"Modeling the signal of the cosmic web with hydrodynamical simulations"*, Department of Astronomy, University of Bologna, Italy – Oct 2006
- *"X-ray emission and SZ effect of the large scale structure of the Universe: global and local properties"*, Department of Astronomy, University of Bologna, Italy – Mar 2005

OTHER ACADEMIC ACTIVITY

Teaching

▪ **Classes and teaching assistance**

- 2017/18 (University of Bologna):
 - Teaching assistant of Physics at the Energetic Engineering Bachelor course (30 hrs)
- 2016/17 (University of Bologna):
 - Teaching assistant of Physics at the Energetic Engineering Bachelor course (30 hrs)
 - Teaching assistant of Calculus at the Astronomy Bachelor course (48 hrs)
 - Lecture "*The SZ effect in Galaxy Clusters*" (2 hrs), Astrophysics and Cosmology Master Course
- 2015/16 (University of Bologna):
 - Teaching assistant of Physics at the Energetic Engineering Bachelor course (30 hrs)
 - Teaching assistant of Calculus at the Astronomy Bachelor course (48 hrs)
 - Lecture "*The SZ effect in Galaxy Clusters*" (2 hrs), Astrophysics and Cosmology Master Course
- 2014/15 (University of Bologna):
 - Teaching assistant of Physics at the Energetic Engineering Bachelor course (30 hrs)
 - Teaching assistant of Calculus at the Astronomy Bachelor course (45 hrs)
 - Lecture "*The SZ effect in Galaxy Clusters*" (2 hrs), Astrophysics and Cosmology Master Course
- 2013/14 (University of Bologna):
 - Teaching assistant of Physics at the Energetic Engineering Bachelor course (30 hrs)

▪ **Supervising**

- 2017/18: Co-supervisor of Master's Degree thesis of F. Stoppa, title: "*Distribution of galaxies in clusters detected with optimal filtering: a statistical validation*", University of Bologna
- 2015/16: Co-supervisor of Master's Degree thesis of F. Donati, title: "*Constructing an optimal filter for the detection of galaxy clusters in photometric surveys*", University of Bologna
- 2011/12: Co-supervisor of Master's Degree thesis of S. Di Meo, title: "*Absorption study of the WHIM*", University of Bologna
- 2007/08: Co-supervisor of Master's Degree thesis of J. Lanoux, title: "*The impact of dust on the formation and evolution of the large-scale structures of the Universe*", Université Paul Sabatier, Toulouse (France)

Third Mission

▪ **Outreach**

- TV interview on the Lunar Eclipse, éTV, Bologna – Jul 2018
- "*Dark Matter: do we see it or not?*", talk for Conferenze della Specola, University of Bologna – Apr 2018
- "*Do we see it or not? Dark matter in the cosmos and in the laboratory*", Aperitivo Scientifico, talk-interview event introducing the "*Notte dei Ricercatori*", Dynamo, Bologna – Sep 2017
- "*Dark Matter: do we see it or not?*", talk for Pint of Science, Bologna – May 2017
- Staff for the exhibit at the "*Notte dei Ricercatori*", Opificio Golinelli, Bologna – Sep 2016
- Talk and answering to questions at "*Bologna s'illumina*", outreach event for the International Year of Light, Opificio Golinelli, Bologna – Nov 2015

▪ **Other**

- Contributed to the reform of the "*Statuto d'Ateneo*" of the University of Bologna (2016)
- Representative of postdocs in the "*Consiglio di Dipartimento*" of the Physics and Astronomy Department at the University of Bologna (2015-16)
- Promoted the importance of university, culture and research in interviews on local and national newspapers and as invited speaker to several public events organised by associations, political parties and trade unions

ANNEXES

- Short list of 12 publications
- Full list of publications

DATE

26/4/2019