

---

## Dr. Lorenzo Natalucci

INAF/IAPS, Institute for Space Astrophysics and Planetology  
Via del Fosso del Cavaliere, 133 – 00172 Rome, Italy  
Phone: +390645488461, Fax: +390645488188, Email: [lorenzo.natalucci@inaf.it](mailto:lorenzo.natalucci@inaf.it)

### Position

Staff Researcher (“Primo ricercatore”) at Institute for Space Astrophysics and Planetology (INAF/IAPS), Rome.

### Research Interests

- Astrophysics of Galactic compact objects: high energy transients, physics of neutron star binaries, high energy surveys and Galactic source populations.
- Multi-messenger astronomy: gamma-ray counterparts of gravitational wave and neutrino sources
- Pulsar wind nebulae and Supernova Remnants: multi-mission campaigns, the Crab as a reference for cross-calibration.
- X-ray/gamma-ray telescopes: hard X-ray imaging (coded masks, focusing gamma-rays), novel instruments design, simulations, high energy calibration.
- In-orbit background and polarization modeling.

### Professional Experience

- Project Scientist of *AHEAD2020* (“Integrated Activities for the High Energy Astrophysics Domain”), a project funded under the EU Horizon 2020 Research Infrastructure program (Grant Agreement No: 871158; start: March 2020). The *AHEAD2020* Consortium is constituted by 38 major European research Institutes and industries.
- PI of ASI/INAF contract for support to the *INTEGRAL* mission (data exploitation activities and in-orbit support).
- PI of ASI/INAF contract for support of the Italian teams participating to the HEMERA European stratospheric balloon program.
- Member of the multi-messenger *INTEGRAL* team since 2016. He takes active part in the analysis of the high energy detector data to optimize the search of new cosmic transients in coincidence with the LIGO/Virgo campaigns.
- Member of the *NuSTAR* Science Team since 2011, active in the *Galactic Binaries* and *Galactic Survey* Working Groups. For this NASA mission, operational since 2012 he is also leading a project for polarimetric data analysis, activity funded by ASI (Italian Space Agency) and INAF (National Institute for Astrophysics).
- Principal Investigator (PI) and Co-PI of many approved observation proposals for Galactic astronomy with *BeppoSAX*, *INTEGRAL*, *Swift*, *NuSTAR*. For *NuSTAR*, he has led significant advances on the study of the class of Supergiant Fast X-ray Transient, for which he is PI of observations performed during the Cycle 1 and Cycle 3 Guest Observer Programs.
- Member of the International Astronomical Union (IAU) and of the American Astronomical Society (AAS).
- Main Organizer of the Conference “*X- and Gamma-ray Counterparts of the New Transients in the Multi-messenger Exploration Era*” at the 2018 COSPAR Meeting in Pasadena (USA).

---

Deputy Organizer of the conference “*NuSTAR first science*” at the 2014 COSPAR Meeting in Bangkok.

- Member (since 2006) of the International Astronomical Consortium for High Energy Calibration (*IACHEC*). Chairman of the Non-Thermal SNR Working Group, he is leading a cross-calibration project based on Crab multi-mission data analysis.
- Member since 2009 of an International team (led by NASA scientist C. Wilson-Hodge) for the study of the variability of the Crab Nebula in the hard X-rays.
- Member of the *INTEGRAL*/IBIS survey group. Former member of the *INTEGRAL* Operations Coordination Group led by ESA and of ESA Review panel for the *INTEGRAL* Science Ground Segment Review.
- Member of X-IFU instrument team onboard *Athena*, the future Large X-ray Observatory selected by ESA. He is also a member of the *Athena* Mission Performance Working Group, for the topics: “Science Ground Segment”, “Inter-calibration”.
- Co-Investigator of *PoLSTAR*, a proposal for a NASA/SMEX mission for polarimetry in the hard X-rays, tightly connected to the *NuSTAR* optics and spacecraft design technologies.
- Research unit coordinator of R&D activities on solid state detectors (CZT); design studies of crystals for soft gamma-rays focusing optics.
- PI of ASI funded study for the *EXIST* mission proposal (Astro2010 Decadal Survey); Co-PI of ASI funded study for the Gamma-Ray Imager (GRI), proposed for ESA M2 Cosmic Vision.
- Principal Investigator and Co-PI of ASI-funded studies for Italian participation to the *EXIST* (US Astro2010 Decadal Survey) and *GRI* (ESA CosmicVision, M2) space mission proposals.
- Design of the IBIS imager on board the ESA *INTEGRAL* observatory: coded mask pattern, passive shields and instrument operational modes. Former IBIS Operations and Software Manager (1996-2000)
- Development of analysis tools for the French/Soviet GRANAT/Sigma telescope and of the Science Ground Segment of the Italian *BeppoSAX* satellite (1988-1993)
- During the 1990’s, he participated to the planning and data analysis for the observation campaigns of the Galactic Center with the *BeppoSAX*/WFC, which allowed the discovery of a high number of new low mass X-ray binaries containing neutron stars.

### **Other topics addressed**

- Study of an experimental approach to portable systems for low dose radiography using CdZnTe detectors.

### **Education**

- Degree in Physics (Laurea), 1985; Università degli Studi, Bologna (Italy); grade: 110/110
- Postdoc Fellow of National Research Council, Italian Ministry of Education and ESA (1988-1991)

### **Honors/Awards**

- NASA group achievement award to *NuSTAR* Science Team  
“*For exceptional achievement in executing the NuSTAR science program leading to groundbreaking discoveries in High Energy Astrophysics*”
- NASA group achievement award to *NuSTAR* Project Team

---

*“For exceptional achievement in the completion of the NuSTAR prime mission, significantly exceeding the mission success criteria”*

- NASA group achievement award to NuSTAR Galactic Survey Team

*“For exceptional achievement in executing the NuSTAR Galactic Survey program, and finding and studying high-energy sources in our Galaxy*

## **Publications**

Author of 111 articles in refereed journals and of other 234 non-refereed publications on astrophysics.