

Titles of the Theses available for the PhD XXXII cycle

In this document we list all the theses available for the XXXII cycle at the University of Roma Sapienza, at the University of Roma Tor Vergata, and at INAF.

Theses available at Sapienza, Universita' di Roma

- a) *“Study of the contribution of mirror last stage suspensions to the sensitivity of gravitational wave interferometric detectors”*. Tutor: P. Rapagnani, Co-tutor: P. Puppo.
- b) *“Development and implementation of new data analysis algorithms to detect continuous gravitational waves emitted by compact objects”*.
- c) Tutor: P. Astone, Co-tutor: P. Rapagnani
- d) *“Weak lensing with Euclid”*. Tutor: R. Maoli, Co-tutors: R. Scaramella and V. Cardone
- e) *“The spatial distribution and the statistical properties of high redshift galaxies”*. Tutor: A. Fontana, Co-tutor: Dr. R. Maoli
- f) *“Formation and evolution of protoplanetary disks after the ESA mission Rosetta”*. Tutor: M. T. Capria, Co-tutor: S. Masi
- g) *“Optimization of next-generation instruments for CMB polarization measurements”*. Tutor: F. Piacentini
- h) *“Supermassive black holes and Nuclear star clusters in galaxies”*. Tutor: R. Capuzzo Dolcetta in collaboration with: ARI (Heidelberg, Germany) and NAOC/CAS (Beijing, China)
- i) *“Extrasolar planets in binary and multiple stellar systems”*. Tutor: R. Capuzzo Dolcetta, Co-tutor: P. Teofilatto
- j) *“Constraining neutrino physics with current and future cosmological surveys”*. Tutor: A. Melchiorri
- k) *“Constraining dark matter and dark energy properties with current and future cosmological surveys”*. Tutor: A. Melchiorri
- l) *“The Large-Scale Polarization Explorer: focal plane development and calibration”*. Tutor: P. De Bernardis
- m) *“Kinetic Inductance Detectors for the Cosmic Microwave Background”*. Tutor: P. De Bernardis
- n) *“Sunyaev Zeldovich effect spectral measurements with the stratospheric balloon*

experiment OLIMPO". Tutor: S. Masi

- o)** *"Characterization of an optical combiner for bolometric interferometry at millimetre wavelengths: models, tests and calibration"*. Tutor: M. De Petris
- p)** *"Study of total mass, pressure profiles and internal motions in clusters of galaxies by the Sunyaev-Zel'dovich effect by employing hydrodynamic simulations and observations"*. Tutor: M. De Petris
- q)** *"Dynamical evolution in globular clusters: a new approach to the study of tidal effects induced by the hosting galaxy, through N-body simulations"*. Tutor: M. Merafina
- r)** *"Strangeness in dark matter: strong interactions particle conglomerates as components for galactic halos in spheroidal galaxies"* Tutor: M. Merafina - Co-Tutor: K. Piscicchia. In collaboration with INFN National Laboratory of Frascati (LNF).
- s)** *"New techniques for space science missions"*. Tutor: P. Teofilatto

Theses available at the University of Roma Tor Vergata

- a)** *"Search for gravitational wave signals from compact sources with the advanced interferometric detectors"*. Tutor: V. Fafone
- b)** *"New approaches for sensitivity enhancement in future gravitational wave detectors"*. Tutor: V. Fafone
- c)** *"CMB polarization patterns: theoretical opportunities vs. observational challenges"*. Tutor: N. Vittorio
- d)** *"The Blazar Puzzling X-ray and Gamma-Ray Emissions: New Theoretical Modelling Based on Jet Instabilities and Magnetic Field Reconnection"*. Tutor: M. Tavani Co-Tutor: F. Vagnetti
- e)** *"Studying AGN in VANDELS"*. Tutor: L. Pentericci, Co-tutor : F. Vagnetti
- f)** *"Solar storms in the interplanetary space: propagation and forecast"*. Tutor: D. Del Moro, Co-tutor: M. Laurenza
- g)** *"The Magnetic Field and the Dynamics of the Solar Convection"*. Tutor: D. Del Moro, Co-tutor: G. Consolini
- h)** *"The Active Sun and Space Weather: Characterizing and Forecasting the Space around the Central Star of a Planetary System"*. Tutor: F. Berrilli
- i)** *"Observations and modelling of planetary atmospheres and central star interaction"*. Tutor: G. Piccioni, Co-tutors: C. Cagnazzo and F. Berrilli

- j) *"Beyond the standard model: stellar constraints to dark-matter candidates and other (astro-) particles"*. Tutor: R. Buonanno, Co-tutor O. Straniero
- k) *"The present Solar System: a reservoir of pre-biotic materials"*, Tutor: R. Buonanno
Co-tutors: E. Dotto, E. Mazzotta Epifani.
- l) *"On the absolute age of nearby stellar systems using accurate and absolute near-infrared color-magnitude diagrams"*. Tutor: G. Bono
- m) *"Unresolved stellar populations in high redshift galaxies"*. Tutor: A. Grazian Co-tutor: G. Bono
- n) *"Investigation of Astrophysical Signatures of axion-like particles (ALPs) in galaxies and clusters of galaxies observed in the X-ray band with Chandra and XMM-Newton"*. Tutor: P. Mazzotta Co-tutor: F. Nicastro
- o) *"Physics of the intracluster medium from X-ray observations of clusters of galaxies"*.
Tutor: P. Mazzotta
- p) *"Cosmology from SZ clusters of galaxies"*. Tutor: G. De Gasperis
- q) *"Characterization of extrasolar planets using current and future ground-based facilities"*. Tutor: A. Balbi
- r) *"Search for dark matter in nearby stellar systems using ground and space based observing facilities in optical and TeV domain"*. Tutor A. Antonelli Co-tutor: A. Balbi,
- s) *"Improving the detection range of coalescing compact binary systems (Neutron Stars and Black Holes) through the reduction of thermal noise in interferometric gravitational wave detectors"*. Tutor: Alessio Rocchi, Co-tutor: Eugenio Coccia

Theses available at INAF

- a) *"Origin and cosmic evolution of iron in the IntraCluster Medium"*. Tutor: P. Tozzi
- b) *"Analysis and interpretation of photometric data for stellar populations and pulsating stars in the halo of the Milky Way and its satellite galaxies"*. Tutor: M. Marconi
- c) *"Search for X and Gamma-ray cosmic sources of gravitational waves events with INTEGRAL and NuStar"*. Tutor: A. Bazzano
- d) *"Communicating the Energy: accretion properties and feedback in AGN"*. Tutor: E. Piconcelli Co-tutor: F. Fiore
- e) *"Core collapse Supernovae and their gravitational wave emission"*. Tutor: L. Stella, Co-tutor: M. Limongi