

Six fixed-term research positions on galaxy dynamics, galaxy evolution, dark matter, and modified gravity at the University of Cagliari

The University of Cagliari (Sardinia, Italy) is advertising six research positions for two years, with the possibility of renewal for two additional years.

The successful candidates will work with Prof. Federico Lelli (<https://www.lellifederico.com/>) within the context of the research program “GALDYN: Galaxy dynamics across cosmic time to unveil dark matter”, funded by a Consolidator Grant (~1.5 million euro) from “Fondo Italiano per la Scienza” of the Italian Ministry of University and Research. GALDYN aims to test different models of galaxy evolution, dark matter, and modified gravity by studying the physical and dynamical properties of galaxies and galaxy systems (pairs, groups, clusters) at different cosmic epochs. GALDYN adopts a multifaceted approach combining observations at different wavelengths, theoretical models, and simulations.

The successful candidates will have the opportunity to join different international collaborations. For example, the BIG-SPARC collaboration (with core members in Italy and USA) is studying a sample of ~4000 galaxies at $z=0$ combining HI data with optical, NIR, and submm observations. The TRICEPS collaboration (with core members in Italy, Canada, China) is studying a sample of massive galaxies at $z=4-5$ combining observations from ALMA, JWST, HST, and VLA. Other relevant collaborations are WALLABY, KILOGAS, WISDOM, CONDOR. The successful candidates will also have access to high-performance computing resources. The gross salary will be 40,197 euros/year. Pension and health benefits are included. Ample money for traveling (~10,000 euros/year) and hardware will be available.

The candidates must hold a PhD degree in a relevant field or be expected to obtain their PhD degree by 5 April 2027. The following skills are preferred requisites but are not strictly necessary to apply: radio/submm interferometry, optical/NIR spectroscopy, surface photometry, dynamical modeling, knowledge of MOND, software development, machine learning, numerical simulations.

This call for applications aims to build the foundations of a new, international, diverse, and enthusiastic research group in galaxies and cosmology at the Physics Department of the University of Cagliari. Additional group members may be hired in the future.

The Physics Department of the University of Cagliari is located on a lively campus in the metropolitan area of the main city, which is conveniently connected to the city center by a metro line. Cagliari is the largest city of the Sardinia island, which is famous for its beautiful beaches, wild nature, pleasant weather, ancient history, and culinary tradition. The Physics Department has strong ties with the Cagliari Astronomical Observatory (INAF), which hosts several research groups in astrophysics and operates the Sardinia radio telescope (SRT), a 64-m fully-steerable single-dish radio/mm telescope. Sardinia is also one of the candidate sites to host the up-coming Einstein telescope.

How to apply:

The application deadline is November 2 at 23:59 (CET). The application should be sent using the PICA online platform: <https://pica.cineca.it/en/unica/cdr-48d-1026-02-phys-05/domande>. After selecting the research project (code: cdr_48D_1026_02/PHYS-05) and clicking on the mandatory declarations (by Italian law), the following material must be uploaded:

- A signed list of (max) two publications to be judged by the committee;
- The pdf copy of those two publications;
- A signed curriculum vitae;
- A research project (max 3 pages; font size 12);
- A copy of a valid identity document (for EU citizens) or valid passport (for non-EU citizens);
- A copy or translation of the PhD degree in English, or a formal letter from the PhD advisor or responsible person stating that the candidate is expected to obtain the PhD degree within 6 months.

The PICA platform will generate a complete pdf document, which needs to be digitally signed or eventually printed, hand-signed on the last page, scanned, and uploaded back in the system. The signature is not necessary for applicants that access the PICA platform using a certified Italian digital identity system, such as SPID or CIE.

For any information (scientific or practical) please send an email to federico.elli@unica.it.