

## **Postdoctoral Position in Observational Cosmology**

Port d'Informació Científica is a scientific data center maintained through the collaboration of CIEMAT and IFAE. PIC was created in 2003 with the main mission to fulfill Spain's commitment of providing a first level (Tier-1) data processing center for CERN's Large Hadron Collider (LHC). Since then, it has expanded into Astroparticle Physics and Cosmology: it is the main data center for the MAGIC and PAU Survey collaborations and is one of the 10 Science Data Centers of Euclid, specializing in the provision of large-scale cosmological and image simulations. It has been recently included in the Red Española de Supercomputación (RES) as a science data center.

IFAE is a worldwide recognized center for fundamental research in Particle Physics, Astroparticle Physics and Cosmology, and provides an international, dynamic, and competitive environment for training of young researchers.

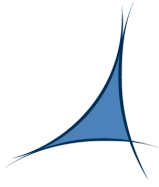
IFAE-PIC Cosmology group is a full member of the Dark Energy Survey (DES), the PAU Survey Collaboration, the Dark Energy Spectroscopic Instrument (DESI), the Euclid Consortium and the Dark Energy Science Collaboration (DESC) of the Legacy Survey of Space and Time (LSST) at the Rubin Observatory. The group plays leading roles in the analysis of DES, PAU, and DESI, and is preparing for the data exploitation of the Euclid and LSST-DESC surveys. The team also has a main role in the generation of the Euclid's Flagship galaxy catalog, and makes PIC the center of reference for the creation and distribution of the largest and most complete synthetic galaxy catalog currently available.

The post-doctoral researcher is expected to interact with the different group members to compile and understand the different galaxy simulation requirements. She/He will play a fundamental role in the generation and improvement of galaxy catalogs, as well as their analysis and validation. The catalogs will be used for several scientific purposes, from calibrating photometric redshifts, to study the effect of the galaxy intrinsic alignment in the cosmic shear or to be able to cross-correlate galaxy samples from multiple surveys.

### **Job Description**

You will work as a researcher within the group that collaborates with Astrophysics and Cosmology projects at PIC. Your job will consist in

- Managing, developing, improving and validating the “Scientific Pipeline @ PIC” (scipic), which is an algorithm to generate mock galaxy catalogs starting from a dark matter halo catalog.
- Collaborating with national and international scientists to analyze already available data (DES and PAUS) or prepare the analysis for future galaxy surveys (Euclid and LSST-DESC).
- Publish original research in journals or conferences.



## Required Skills

You will have the support of the Operations and Services teams at PIC and access to their expert knowledge in production services and systems administration. In turn, we expect from you:

- PhD in Physics or Astronomy on the date of the contract start.
- Experience with dark matter and galaxy simulations.
- Experience in reduction, calibration and analysis of astronomical observed and simulated data.
- Experience in programming in python, software management, git.
- Fluent knowledge of English, both written and spoken.

## Additional knowledge that will be valued

- Experience with statistical tools.
- Experience in working with Linux/Unix operating systems, other astronomical software (SExtractor, DS9, etc.) and databases.
- Excellent communication and interpersonal skills.
- Being proactive. Having the ability to manage independently project implementation and delivery within a multidisciplinary team environment.

## Contract characteristics

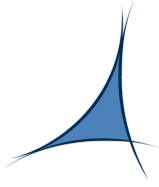
The recruiting center will be the Institut de Física d'Altes Energies (IFAE). The place of work will be the headquarters of PIC at Universitat Autònoma de Barcelona.

At least 1 position. Full-time position (40h/week). The contract will be for 1.5 years, including a 2 months trial period, renewable up to an additional year depending on mutual satisfaction and availability of funds.

The position will correspond to Postdoctoral Researcher Senior within the [IFAE professional categories](#). Salary will be commensurate with experience and qualifications within the corresponding category range. The successful candidate would start working at PIC no later than November 2022.

In compliance with article 121 of the Spanish Public Sector Legal Regime Act, staff with a pre-existing relationship with the Consortium administration (Generalitat de Catalunya and Universitat Autònoma de Barcelona) will have priority in the awarding of the position.

## Applications



**PIC**  
port d'informació  
científica

*Helping to turn information into knowledge*

Applicants must be nationals of the European Union, or of countries in the European Economic Area or Switzerland, or have a valid Spanish work permit.

All documentation will be handled electronically and exclusively in pdf format. Applications should be sent to [pic.jobs@pic.es](mailto:pic.jobs@pic.es) indicating reference number PIC2022-COSMOFUN-1 attaching a Curriculum Vitae and any other relevant documentation. Sending CVs to the above address implies consent to the legal warning at the bottom of IFAE's Home Page.

Deadline: October, 24, 2022

IFAE is an equal opportunity employer committed to diversity in the workplace and social integration of people with a disability. We welcome applications from all qualified candidates. People from groups that are typically underrepresented in the labour market in general and in Science and Engineering in particular, such as women, minorities, or people with a disability, are particularly encouraged to apply.

You may contact Jorge Carretero ([carretero@pic.es](mailto:carretero@pic.es)) or Christian Neissner ([neissner@pic.es](mailto:neissner@pic.es)) for any questions related to this job opening.

### **Funding**

This contract is part of the project "Simulations and analysis of massive data for cosmology with extragalactic surveys - COSMOFUN", within the frame of the State Program for Knowledge Generation for the Promotion of Scientific Program to Promote Scientific-Technical Research and its Research and its Transfer, of the State Plan of Scientific, Technical Research and Innovation 2021-2023 of the Spanish Ministry of Science and Innovation.

Bellaterra, September 23, 2022