

Position Offered: POSTDOCTORAL RESEARCHER

Project: *Computational Techniques at the Frontier of the Digital Transition for Particle Physics and Cosmology*

Technological and scientific fields: HPC, Massive data and information processing, Artificial intelligence, Advanced data analytics, Edge computing, Particle Physics and Cosmology.

Location: Madrid, Madrid, Instituto de Física Teórica IFT UAM-CSIC <https://www.ift.uam-csic.es>

Research Group/PI: Quantum Fields, Gravity and Strings / Margarita García Pérez and Gregorio Herdoíza

PROJECT SUMMARY

The IFT is a centre dedicated to theoretical research in fundamental physics, which has been awarded the Severo Ochoa Distinction three times in a row. The project cuts across several IFT research areas with a strong computational component, where digital transformation is key: i.e. 1) large scale simulations in particle physics; 2) data analysis from particle physics and cosmology experiments; 3) programming of new architectures such as Graphics Processing Units (GPUs) or quantum computers.

The position offers a hybrid researcher-technician profile with proven experience in HPC, scientific hardware and software. The person recruited will play a key role as the hub of IFT's research activities with HPC and/or AI/AA components. Essential elements will be the design and implementation of the strategy for the transformation of IFT's hardware and data management infrastructures, as well as the optimisation and benchmarking of software tools.

PROFESSIONAL PROFILE

Minimum requirements:

- Doctorate in Physics

Merits to be considered:

- Knowledge of High Performance Computing and parallel programming.
- Knowledge of Machine Learning and Artificial Intelligence techniques.
- Knowledge of Information and Communications Technology security protocols.
- Experience in handling, deploying and managing supercomputing clusters.
- Experience in deploying and managing data storage infrastructures.
- Experience in deploying scientific software on different platforms.

WHAT IS OFFERED

The HPC/AI/AA group at IFT has a robust network of contacts and collaborations in the European supercomputing ecosystem, with a regular role of responsibility for managing and accessing HPC resources (e.g. in the EuroHPC domain). This will naturally enable the organisation of training and research visits to European HPC centres, from which the recruited person will benefit. A training plan in digital competences will be planned and agreed with the person recruited, aiming to cover as many ECTS as possible within the range of 60-180 ECTS. Complementary training focusing on the acquisition of transversal competences will also be provided. The total estimated effort of the training plan will be at least of 240 ECTS.

Contract conditions:

Indefinite contract for a Postdoctoral Researcher associated to the Momentum Project of 4 years' duration according to Spanish science law. Gross annual salary (41.000 € - 52.000 €).

Start of contract: before 31 December 2024

PRINCIPAL INVESTIGATOR CONTACT

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