

## PhD position in High Energy Physics Instrumentation

### Job description:

The IFIC-Valencia group invites applications for a PhD position in advanced detector electronics and data processing technologies for future particle colliders.

IFIC (Instituto de Física Corpuscular) is a joint center of the Spanish National Research Council (CSIC) and the University of Valencia (UV), dedicated to research in Particle, Astroparticle, and Nuclear Physics and their applications, covering both theoretical and experimental aspects. More information about IFIC can be found at: <http://ific.uv.es>.

The group has longstanding expertise within the ATLAS Collaboration, contributing to the development and certification of calorimeter modules and electronics, as well as in advanced data acquisition systems. Building on this experience, the group is now actively involved in the ECFA Detector R&D Roadmap, focusing on key technologies for the Future Circular Collider (FCC).

We offer a PhD position for up to 4 years to join the IFIC-Valencia group in the development of advanced data processing and detector technologies. The successful candidate will contribute to:

- Evaluation and certification of innovative silicon photomultipliers (SiPMs) for calorimetry.
- Design and prototyping of robust readout and control electronics for detector sensors.
- Development of high-performance data acquisition (DAQ) systems, including high-speed optical data transmission.
- Implementation of advanced real-time signal processing and reconstruction algorithms, including neural network approaches on FPGA platforms.
- Simulation studies and feasibility assessments for FCC-ee and FCC-hh detectors, guiding design optimization.
- Participation in test beam campaigns at CERN and other facilities to validate prototypes.

The position offers the opportunity to work on cutting-edge technologies at the interface of electronics, computing, and particle physics. As part of the IFIC group, the candidate will join

international collaborations, gain experience in large-scale detector R&D, and contribute to shaping the future of collider experiments.

**Requirements:**

Applicants must hold a degree in Electronics Engineering, Computer Engineering, or Experimental Physics that gives access to PhD studies. Candidates are expected to have a strong interest in electronics design and data acquisition for particle detectors, as well as the ability to take initiative in developing complex systems.

Desirable skills include:

- Experience with PCB design, FPGA firmware, and software for hardware control.
- Knowledge of programming languages such as C++, Python, and VHDL.
- Background in experimental particle physics or related R&D.

**Application:**

Interested candidates should send their application (including a motivation letter, CV, academic transcripts, and the contact information of two persons who could provide letters of reference) to:

[Arantxa.Ruiz@ific.uv.es](mailto:Arantxa.Ruiz@ific.uv.es), [Alberto.Valero@ific.uv.es](mailto:Alberto.Valero@ific.uv.es), [Joaquin.Poveda@ific.uv.es](mailto:Joaquin.Poveda@ific.uv.es).

Review of applications will begin on September 20th and continue until the position is filled.