

4-YEAR PhD FELLOWSHIP IN ASTROPARTICLE PHYSICS

High Energy Physics Group (GAE) · Institute of Particles and Cosmos Physics (IPARCOS-UCM)
CTAO-North · Roque de los Muchachos Observatory, La Palma, Spain



The [High Energy Physics Group](#) (GAE) at the [Institute of Particles and Cosmos Physics](#) (IPARCOS) of the Complutense University of Madrid invites applications for a four-year pre-doctoral fellowship. This position offers an outstanding opportunity to conduct cutting-edge research in experimental astroparticle and gamma-ray astrophysics within a leading international academic environment.

Why Join Us?

Joining GAE-UCM means becoming part of a leading research group with a proven track record of excellence and a vibrant international community. Key benefits include:

- **Global Research Network:** Work directly within premier international collaborations including [CTAO](#), [MAGIC](#), and [Fermi-LAT](#).
- **Cutting-Edge Technology:** Gain hands-on experience in integrated electronics, ultra-fast trigger systems, silicon photo-sensors, and Machine Learning-based data analysis pipelines.
- **Advanced Training:** Access to international symposia, overseas exchange initiatives, and specialized on-site operational shifts at premier astronomical observatories (Roque de los Muchachos Observatory, La Palma).
- **Career Success:** Our alumni hold prominent positions at major research centers and thrive in high-tech industry sectors.

Research Project

The successful candidate will work on a combination of scientific and technical lines, contributing to some of the following research areas:

- **Scientific Exploitation of CTAO-North First Light:** As CTAO-North commences data acquisition in late 2026, the fellow will occupy a pivotal role in interpreting inaugural datasets characterized by unprecedented capabilities. This work will be complemented by the continued high-level analysis of MAGIC and Fermi-LAT data.
- **Gamma-Ray Astrophysics & Dark Matter Phenomenology:** Investigation into the physics of active galactic nuclei (AGN) and pulsars, alongside the execution of indirect searches for dark matter candidates.

- **Computational Physics & Machine Learning:** Development and deployment of sophisticated machine learning frameworks and novel algorithms to optimize the reconstruction of very-high-energy cosmic gamma rays.
- **Instrumentation & Real-Time Systems:** Optimization of high-speed trigger logic and complex data acquisition (DAQ) architectures for the next generation of Imaging Atmospheric Cherenkov Telescopes.

Candidate Profile

- **Academic Excellence:** Applicants must possess a Master's degree in Physics, Astrophysics or a related discipline prior to the commencement of the appointment.
- **Technical Proficiency:** A robust background in physics paired with strong programming capabilities in Python or C++. Demonstrated expertise in instrumentation or data analysis is particularly valued.
- **Communication:** Fluency in English is essential for navigating our international research environment.

How to Apply

Interested candidates should submit their application materials via email to info@gae.ucm.es specifying "**PhD Fellowship Application – [Candidate Name]**" in the subject line. A complete dossier must include:

- **Comprehensive Curriculum Vitae.**
- **Academic Transcripts:** Complete transcripts for Bachelor's and Master's degrees.
- **Motivation Letter:** A concise statement outlining research interests and suitability for the position (maximum 1 page).
- **References:** Contact information for at least two academic referees.

The Complutense University of Madrid is committed to fostering a diverse and inclusive research environment. We encourage applications from qualified individuals of all backgrounds.

Application Deadline: September 20th, 2026

High Energy Physics Group
Institute of Particles and Cosmos Physics
Complutense University of Madrid
info@gae.ucm.es