

Predocctoral position in neutrino physics at CIEMAT (Madrid, Spain)

203-PRECIE-PDI25

The Neutrino Physics Group at CIEMAT offers a predoctoral position for MSc graduates interested in neutrino physics research towards a PhD Thesis within the Deep Underground Neutrino Experiment (DUNE), a leading-edge international experiment for neutrino science.

The Neutrino Group participates in the design and optimization of the photon detection system and is also involved in the physics program of DUNE. DUNE is a next-generation long-baseline neutrino oscillation experiment that also aims at detecting the neutrino flux from a core-collapse supernova within our Galaxy, neutrinos from the sun, and searching for nucleon decay and other Beyond Standard Model physics. The DUNE far detector will consist of four liquid-argon TPC detectors of 17-kt total mass each. As a first step, large-scale liquid argon prototypes (ProtoDUNEs), operating at the CERN Neutrino Platform are demonstrating the technology before it is scaled to the enormous mass required for the far detectors.

Candidates must have a master's degree in physics or similar at the time of the application, a good English knowledge and strong interest in the neutrino physics field. Experience in C++ and Python programming will be also valuable. For further information, interested candidates are encouraged to contact Inés Gil-Botella (ines.gil@ciemat.es).

The job functions may include:

- Participation in the commissioning and data taking using liquid argon detectors at the Fermilab and CERN laboratories.
- Characterization and development of cryogenic photodetection systems.
- Performance of MC simulations and reconstruction of particle interactions in liquid argon detectors.
- Study of low-energy neutrinos from supernovae and the Sun, and searches beyond the Standard Model in liquid argon detectors.
- Presentation of research results in English at international conferences, seminars, and meetings.
- Preparation of technical reports and scientific articles in English and Spanish.

The position is based at CIEMAT (Madrid, Spain). Funded research stays at Fermilab (USA) and CERN (Switzerland) are possible.

The CIEMAT Particle Physics Unit is an affirmative action/equal opportunity employer. Eliminating gender inequalities by promoting equal opportunities for men and women is a core compromise of our group and it is our commitment to establish the necessary actions to close the gender gap. More information in <http://cfp.ciemat.es/equality>