

Predoctoral position in Experimental Particle Physics at CIEMAT (Madrid)

Search for new physics and precision studies with the CMS experiment at the LHC (20-PREI-21)

The CIEMAT-Física de Partículas (CIEMAT-FP) Unit announces the **opening of a predoctoral position for an outstanding young MSc graduate interested in working in the CIEMAT-FP group collaborating in the CMS experiment towards a PhD Thesis.**

The **4-year PhD contract** (Personal Investigador Predoctoral en Formación) is funded by CIEMAT. The **official call is placed** at <https://www.ciemat.es/cargarAplicacionOfertaEmpleo.do?identificador=1724>. The **deadline for applications is July 30th. The contract code is 20-PREI-21.**

The CIEMAT-FP group is actively participating in the CMS experiment at the Large Hadron Collider at CERN. The LHC will resume operation in February 2022 after a three years shutdown period to upgrade the accelerator and detectors to prepare for the coming High Luminosity phase of the collider. It is expected to collect a luminosity of 150 fb⁻¹ of data during the years 2022-2024. The analysis of the new data, together with the data sample collected during the Run 2 of LHC will allow extending current searches for physics beyond the standard model (SM) but also to perform precision measurements of many processes within the SM. Should any of these measurements reveal to be inconsistent with the predictions, would be an indication of the path towards an extension of the SM. Some current areas of interest of the CIEMAT-FP CMS group include the measurement of processes involving vector bosons, direct searches for new resonances with high momentum leptons and the determination of the properties of the Higgs boson. The final physics topic for the PhD research will be decided upon agreement with the research interests of the candidate and after evaluation of the needs of the various working groups. The CMS CIEMAT-FP group is heavily involved in the upgrade of the muon detector. The successful candidate is expected to contribute also in this effort.

We offer close supervision and a stimulating international environment, with expected stays at CERN to carry out research work, for presentation and discussion of results, advanced training in the field participating in highly specialized workshops and schools, and attendance to international conferences with the possibility to present his/her scientific results on behalf of the collaboration.

The candidates must have a Master's Degree in Physics at the time of appointment. Main considerations for selection are excellent grades, very good English knowledge and a strong interest in the scientific field of High Energy Physics at the energy frontier. The experience in programming languages such as C++, python and scripting languages will be valued.

For any further questions, please contact Begoña de la Cruz (Begona.Delacruz@ciemat.es) and/or Isabel Josa (Isabel.Josa@ciemat.es).

The contract is expected to start on the last quarter of 2021.

The CIEMAT Particle Physics Unit of Excellence 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.