

Predocctoral position in Experimental Particle Physics at CIEMAT (Madrid)

Search for new physics in precision studies with the CMS experiment at the LHC

(Búsqueda de nueva física en estudios de precisión con el experimento CMS del LHC)

The CIEMAT-Física de Partículas (CIEMAT-FP) María de Maeztu Excellence Unit announces the upcoming 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 will be published at the CIEMAT Job Vacancies webpage <http://www.ciemat.es/portal.do?IDM=254&NM=2> by the end of October 2018. It will also be announced at <http://cfp.ciemat.es/predoc> referring to the respective official call.

The CIEMAT-FP group is actively participating in the CMS experiment at the Large Hadron Collider at CERN. CMS has collected more than 150 fb^{-1} of data during the Run 2 of LHC (2015-2018). The analysis of this amount of data is allowing 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 precision measurements of the top quark properties, the measurement of processes involving vector bosons (W, Z inclusively and accompanied by jets), 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 several working groups.

The CMS detector will be upgraded during the LHC long shutdown period 2019-2020 to prepare for the coming High Luminosity phase of the accelerator. 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 on his/her research work, for presentation and discussion of results at working meetings, 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 modern programming languages such as C++, python and scripting languages will be valued.

For any further questions, please contact Juan Alcaraz (Juan.Alcaraz@cern.ch) and/or Isabel Josa (Isabel.Josa@ciemat.es).

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.