



GOBIERNO
DE ESPAÑA

MINISTERIO
DE CIENCIA, INNOVACIÓN
Y UNIVERSIDADES

Ciemat
Centro de Investigaciones
Energéticas, Medioambientales
y Tecnológicas



EXCELENCIA
MARÍA
DE MAEZTU



CFP
CIEMAT
física de partículas

PhD position in Experimental Particle Physics at CIEMAT (Madrid)

Physics beyond the Standard Model with the CMS experiment at the CERN LHC

(Física más allá del modelo estándar en el experimento CMS del LHC del CERN)

Since 2015 the Large Hadron Collider (LHC) at the CERN European Particle Physics Laboratory (Geneva, Switzerland) is colliding proton beams at a center-of mass energy of 13 TeV, a significant increase in energy relative to its previous working period, 2010-2013. The CMS detector, one of the four experiments located at the LHC and analyzing the collision data, is thus able to explore new domains at the high energy frontier.

The CIEMAT-Física de Partículas (CIEMAT-FP) María de Maeztu Excellence Unit is member of the CMS Collaboration, having participated in the design, building, calibration, operation and maintenance of part of the Muon Detectors, in their alignment and associated electronics, in the computing infrastructure required for the data analysis and in a wide variety of physics studies obtaining scientific results which are published in specialized journals. The main areas of scientific research of the CMS CIEMAT group comprise the production of Electroweak bosons, alone or in association with jets, the study of top and bottom quarks, their properties and their experimental identification, the measurement of the recently discovered Higgs boson and its main characteristic parameters, and searches for New Physics beyond the Standard Model (SM). The CMS CIEMAT-FP group is also heavily involved in the upgrade of the Muon Detector in view of the coming high luminosity phase of the LHC.

Many different search channels are addressed in CMS, either driven by theoretical models predictions or directly looking for experimental results inconsistent with the SM expectations. One of the current research activities of the CIEMAT group involves precision studies of the Higgs boson and searches for new scalar particles and potential physics effects related with this still largely unexplored sector of the SM.

A 4-year PhD position is offered to integrate the group working on Higgs physics. 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 any of the scientific fields of CIEMAT-FP. The experience in modern programming languages such as C++, python and scripting languages will be valued.



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The candidate is expected to participate to the analysis of CMS data and also to contribute to detector performance studies with the upgraded detector.

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.

For further information 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.