



**Institut de Física
d'Altes Energies**



Predocctoral Positions in Hadron Collider Physics at the LHC with the ATLAS Detector (IFAE-Barcelona)

The High Energy Physics Institute in Barcelona (IFAE-Barcelona) announces the opening of two predoctoral positions for outstanding young graduates interested in working towards a PhD thesis at IFAE. IFAE is one of the top research centers in Spain conducting experimental and theoretical research at the frontier of fundamental physics, as well as developing cutting-edge detector technology. IFAE is one of the *few* Spanish research institutes awarded with the *Severo Ochoa* distinction for excellence on research (recently renewed for the 2017-2021 period).

IFAE maintains a strong presence in the ATLAS experiment at CERN's Large Hadron Collider (LHC), with major responsibilities on the calibration and maintenance of the TileCal hadronic calorimeter and the High-Level Trigger system, and participates in IBL operations and the Pixel detector upgrade. The IFAE-ATLAS group has developed an exciting and broad research program that includes precision measurements of the top quark and the Higgs boson, and searches for new phenomena beyond the Standard Model (e.g. supersymmetry, extra spatial dimensions, dark matter, new heavy quarks and Higgs bosons, etc). The group is also playing a leading role in the design and construction of pixel detectors for future ATLAS upgrades based on the 3D sensor technology, as well as carrying out R&D on other promising technologies such as CMOS active sensors and low-gain avalanche detectors (LGAD). 3D and LGAD sensors fabricated at Barcelona are the baseline for the tracking detector (ITk) and the calorimeter (HGTD) ATLAS upgrades for the HL-LHC era.

The successful PhD candidates will join the IFAE-ATLAS group and will participate in first-class research with the ATLAS detector. This research will be carried out in a highly international environment, in collaboration with scientists from the best universities and research centers around the world. The PhD positions are offered in the following research areas: experimental particle physics (ATLAS analysis/operations), and instrumentation development (ATLAS upgrades). In the first case, the PhD candidate will be expected to play a leading role in physics analysis using the full Run 2 dataset, and participate in the maintenance and operation of ATLAS detector. He/she will carry out most of his/her research at CERN in collaboration with other PhD students and postdoctoral researchers. In the second case the candidate will have the opportunity to work in state-of-the-art high-energy instrumentation development and the preparation of the ATLAS upgrade.

Interested candidates with an excellent CV, a demonstrable English level, a pro-active attitude and good communications skills, are encouraged apply.

For more information on the proposed research projects, eligibility criteria, and the overall application process, please contact Prof. Martine Bosman (bosman@ifae.es) and Prof. Aurelio Juste (juste@ifae.es) (ATLAS analysis/operations) or Prof. Sebastian Grinstein (sgrinstein@ifae.es) (ATLAS upgrade) before **October 15, 2017**.

General information about IFAE is available at <http://www.ifae.es>.