



PhD position in experimental nuclear physics at IEM-CSIC

The Nuclear Physics Group of the IEM-CSIC (Instituto de Estructura de la Materia, Consejo Superior de Investigaciones Científicas) in Madrid is seeking physicists interested in filling a predoctoral FPI position (4 years) in the frame of the research project PID2020-118265GB-C41: “Contemporary experimental and theoretical nuclear structure studies of exotic nuclei” funded by the Spanish Ministerio de Ciencia e Innovación.

Our group is heavily involved in the research activities at many leading experimental facilities in the field of nuclear physics such as RIKEN (Tokyo, Japan), GANIL (Caen, France), ISOLDE (CERN, Geneva, Switzerland) etc. One of the foci of our work is the study of the structure of neutron-rich radioactive nuclei in the region around doubly-magic ^{132}Sn . This region of the Segre chart is of highest interest both from the nuclear structure point of view and for nuclear astrophysics, in particular for the production of heavy elements in the Universe via the rapid neutron-capture process.

In this PhD project, the nature of pairing correlations in these neutron-rich nuclei will be investigated using two-nucleon transfer reactions. For nuclei beyond neutron number $N=82$, recent theoretical calculations predict a novel pairing vibration mode which we plan to investigate for the first time experimentally. The experiment IS696, to be performed at the HIE-ISOLDE facility at CERN in 2022, will involve the newly commissioned ISOLDE Solenoidal Spectrometer ISS setup and a radioactive tritium reaction target. The successful candidate will be in charge of all relevant aspects of this experiment, from the simulation studies to optimize the experimental design and setup and the analysis of the data taken in the experiment to the publication of the scientific results. In addition, the candidate will also have the opportunity to participate in all other research endeavors of the group.

We offer the opportunity to work within a stimulating environment on cutting edge research. The PhD work includes experimental activity at a leading international research facility, namely HIE-ISOLDE at CERN, which will be performed within an international collaboration. Funded research stays at CERN (Switzerland) and GSI (Germany) are possible and desirable. English communication skills are therefore mandatory while experience in computation (Geant4, Root, C++ etc.) is advantageous. Note that to apply for this FPI position, a Master Degree in Physics is required.

We ask all interested candidates to contact us as soon as possible.

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