



PhD Call for applicants in Experimental Nuclear Physics

A call for a PhD Grant (Spanish FPI) is open at the Basic Nuclear Physics group of University of Sevilla within the project “*Física Nuclear y Aplicaciones Médicas en el CNA e Instalaciones Internacionales*”. The group has ongoing research lines for measurements of nuclear reactions, production and use of neutron beams, and simulation and experiments for particle therapy. The thesis work is related to the latter, in particular to the field of proton range verification techniques in protontherapy (more on Phys. Med. Biol. 60 (2015) R155–R209 and Phys. Med. Biol. 58 (2013) R131–R160 review papers).

The goal of the thesis will be to carry out studies intended to improve the QA procedures in particle therapy; in particular it will initially focus on the study of the interaction of low, medium and high energy proton beams with different materials in order to improve the current use of prompt gammas and delayed gammas from β^+ emitters produced along the proton beam path in a patient as a proxy of the beam range. The student will be fully involved in simulating, preparing, performing and analyzing the experiments, which are part of a collaboration with LMU in Munich within the ENLIGHT project. The first phase, using low energy proton beams, will take place at CNA in Sevilla and the Garching Tandem accelerator in Munich; while the second phase experiments will be carried out at clinical beams such as CNAO in Pavia or equivalent facilities.

Research:	-Forefront research in experimental nuclear physics
Requisites:	- Master degree in Nuclear Physics - Availability to travel - Good level of English
Skills:	- Basic knowledge of programming (preferred C++) - Basic knowledge of Monte Carlo simulation (Geant4, FLUKA) and analysis (ROOT) tools. - Initiative - Good communication and team-work skills
Contract:	- Four years contract as FPI (Formación de Personal Investigador)

The official call for candidates by the MINECO is expected along September 2017, but informal contacts are welcome:

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