

Barcelona, April 27<sup>th</sup>, 2010

### Call for 3 Post-Doctoral Positions

The Collaborative Research Project “**Physics of compact objects: explosive nucleosynthesis and evolution**” (**EXNUC**), as part of the ESF Eurocores Program **EuroGENESIS**, is launching **3 Post-Doctoral Positions**.

The Project is aimed to provide a detailed **description of explosive events in stellar binary systems**, such as Classical Novae, X-ray Bursts and Superbursts, Type Ia Supernovae or stellar mergers, addressing certain aspects of their evolution that are relevant for their accompanying nucleosynthesis.

The **EXNUC Project** includes researches from **Spain** (Technical University of Catalonia, Barcelona; Space Science Institute ICE-CSIC, Bellaterra; Univ. Huelva; Inst. Matter Structure IEM-CSIC, Madrid), **Croatia** (Rudjer Boskovic Institute/Univ. Zagreb), **Greece** (NCSR Demokritos/Institute of Nuclear Physics, Athens), **Austria** (Technische Univ. Wien), **Canada** (TRIUMF Vancouver), **United States** (Univ. North Carolina at Chapel Hill; Washington Univ. at St. Louis), **Germany** (Max Planck Inst. Astrophysics, Garching), and **Belgium** (Univ. Libre de Bruxelles).

This international venture is arranged through a truly **multidisciplinary approach**, combining experts from different disciplines: **theoretical astrophysicists**, that will perform state-of-the-art numerical simulations of these stellar explosions; **observational astronomers**, that will provide atomic abundances inferred spectroscopically, using space-borne and/or ground-based facilities; **cosmochemists**, that will determine isotopic abundances through laboratory measurements of meteoritic grains (and will also provide clues on the way matter condenses in the ejecta to form solids); and finally, **nuclear physicists** that will provide information on nuclear processes in stars relying on theoretical and experimental grounds.

**Applicants should have a Ph.D. in Physics or related areas, with experience in Astrophysics and/or Nuclear Physics. Specifically, the selected candidates will work in the following areas and locations:**

- 1) **UPC Barcelona:** computational and/or nuclear astrophysics (e.g., modeling of stellar explosions and their connection to observations, interaction of the ejecta with the companion star, analysis of chemical abundances in the ejecta from novae...). Experience in nuclear physics and/or cosmochemistry would also be valued.

*Contact person:* Dr. Jordi José ([jordi.jose@upc.edu](mailto:jordi.jose@upc.edu)).

- 2) **ICE-CSIC Bellaterra** (Barcelona neighborhood): computational and/or nuclear astrophysics. Experience in 3D modeling of supernova emission or evolution of accreting white dwarfs or galactic chemical evolution will be valued.

*Contact person:* Prof. Jordi Isern ([isern@ieec.uab.es](mailto:isern@ieec.uab.es)).

- 3) **Univ. Huelva & IEM-CSIC Madrid:** experimental nuclear physics. Nuclear reaction studies of astrophysical interest such as  $^{17}\text{O}(p,\alpha)^{14}\text{N}$  and  $^{18}\text{F}(p,\alpha)^{15}\text{O}$  will be performed. Experience in nuclear instrumentation and detectors, analysis methods using root, C++ and Geant4 is essential for the post.

*Contact persons:* Dr. Ismael Martel ([imartel@uhu.es](mailto:imartel@uhu.es)),

Prof. María José G. Borge ([borge@iem.cfmac.csic.es](mailto:borge@iem.cfmac.csic.es)).

**Applications**, including a **detailed CV** with a list of publications and **three reference letters**, should be **sent electronically** to the corresponding Contact Person(s) indicating **PostDoc-EXNUC** in the subject, no later than **May 20<sup>th</sup>, 2010**. The starting date for the 3-year contract is expected to be by late **June 2010**.

Sincerely yours,

**Dr. Jordi José**

Coordinator, EuroGENESIS Project “Physics of compact objects: explosive nucleosynthesis and evolution”