



Institut d'Astronomie et d'Astrophysique - ULB
Campus Plaine – CP 226
Boulevard du Triomphe
B-1050 Bruxelles – Belgique
<http://www.astro.ulb.ac.be>

Brussels, July 15, 2021

Post-doctorate fellowship in Astrophysics: “Modelling nucleosynthesis processes and estimating the related nuclear uncertainties”

One of the major issues in modern astrophysics concerns the analysis and understanding of the present composition of the Universe and its various constituting objects. Nucleosynthesis models aim at explaining the origin of the nuclei observed and identifying the processes able to forge them. Though the origin of most nuclides lighter than iron is now quite well understood (through the various hydrostatic and explosive burning stages in stars), the synthesis of the heavy elements (i.e. heavier than iron) remains unsatisfactory, or even unexplained, in many respects.

The aim of this project is to study nucleosynthesis processes responsible for the production of elements heavier than iron in the Universe. These include, in particular, the slow, intermediate and rapid neutron capture processes as well as the p-process. All these nucleosynthesis processes are affected by nuclear uncertainties. A detailed study of these uncertainties and their impact on nucleosynthesis simulations will be performed in order to support nuclear experimentalists in targeting the nuclear data of prime relevance in future measurements.

The Institut d'Astronomie et d'Astrophysique (IAA) of the Université Libre de Bruxelles (ULB) in Belgium is seeking applications for a Postdoctoral Research Associate in Nuclear Astrophysics. Funded by the Horizon-2020 programme (ChETEC-INFRA: Chemical Elements as Tracers of the Evolution of the Cosmos), this 1.5-year position will see the successful candidate play a leadership role within one of the critical Nuclear Astrophysics Work Packages devoted to understanding the production of elements in different stellar environments, performing computational nuclear astrophysics studies, and helping to define the most relevant reaction rates to target in the next generation of nuclear experiments. Aligned with the core mission of ChETEC-INFRA, the position will entail the provision of support for nuclear astrophysics studies for a number of external users and the delivery of training sessions in nucleosynthesis.

The Post-doctorate position is available at IAA-ULB to work with S. Goriely, L. Siess and A. Choplin. The position is funded for 1.5 years with possible extension depending on funding.



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Applications are opened until August 31, 2021. The position can start as soon as October 1, 2021.

Profile requested:

- The candidate must have a PhD in physics, preferentially astrophysics or nuclear physics awarded no later than 5 years before the start of the contract.
- The candidate must have a good programming knowledge in Fortran and a strong interest in numerical calculations.
- The applicant should have good a taste for interdisciplinary research, excellent scientific writing and presenting skills and be able to work independently.
- Working in our international team requires capacity of teamwork and a good level of English language.

Interested candidates should send their CV and request two referees to send their recommendation letter directly to S. Goriely at Stephane.Goriely@ulb.be

Contact:

S. Goriely

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