Postdoctoral position in experimental study of hypernuclei with machine learning
Instituto de Estructura de la Materia – CSIC, Madrid, Spain

The group of experimental nuclear physics at Instituto de Estructura de la Materia – CSIC, Madrid, Spain, is offering a postdoctoral position in the development of data analysis with machine learning for experimental spectroscopy of hypernuclei. The succesful candidate will join the research led by Christophe Rappold at IEM - CSIC on the study of hypernuclei using ion-induced reactions within the international SuperFRS experiment collaboration for the WASA-FRS experiment [1,2].

The position entails participating in the development of machine and deep learning techniques to enhance data analysis. Specifically, the candidate will focus on improving primary vertex determination, and signal-to-background ratio for hypernuclear signals using deep learning algorithms. The person will play an integral role in the data analysis of the hypernuclear invariant mass reconstruction of the H3Λ H4Λ and nnΛ bound states in the data of 6Li-12C collisions, as well as B9Λ hypernuclei in the data of the 12C-12C collisions.

Candidates must hold an internationally recognized PhD degree in experimental nuclear physics or a related field and possess a strong understanding of high-energy nuclear physics. Proven experience in machine learning development and data analysis of nuclear collisions at high energy is required. The ideal candidate should be dynamic and highly-motivated with a track record of experimental research in nuclear or hypernuclear physics. Fluency in English and comfort working in an international environment are essential.

The position is offered on a fixed-term basis and is set to start in July 2024 for a duration of 1 year. The deadline for application is 15[th] May 2024.

Applications and informal inquiries should be sent via email to Christophe Rappold (christophe.rappold[at]csic.es). The application must include a cover letter, CV and a list of 2-3 references.

[1] T. Saito *et al.*, *New directions in hypernuclear physics* Nature Review Physics **3**, 803 (2021)
[2] H. Ekawa. *et al.*, *Development of machine learning analyses with graph neural network for the WASA-FRS experiment* Eur. Phys. J A **59**, 103 (2023).