
The Institute for Nuclear Physics of the Department of Physics at Technische Universität Darmstadt (TU Darmstadt) invites applications for the position of a

Research Associate (Postdoc) in Experimental Nuclear Physics

within the framework of the Hessian Cluster Project ELEMENTS for a funding period of two years initially. As part of the ELEMENTS early-career support, a young investigator group is being established linked to the working groups of Professors T. Aumann and A. Obertelli. The group will be led by Dr. M. Duer and will include a PhD position and the postdoctoral researcher announced here. The position can be filled as early as possible.

The Cluster Project ELEMENTS is a collaborative project of Goethe University Frankfurt, TU Darmstadt, JLU Gießen, and the GSI Helmholtz Center for Heavy-Ion Research. It addresses the physics of binary neutron-star mergers from gravitational waves to the equation of state (EOS) of nuclear matter. The high densities reached in the inner core of neutron stars of several times the nuclear saturation density may favour energetically the presence of strangeness in the form of kaons and hyperons, which would have a strong impact on the EOS and on properties of neutron stars. The in-medium hyperon-nucleon interactions, which are poorly constrained up to now, can be studied from spectroscopy of hypernuclei.

A new experimental program has been initiated to study the production of light and medium-heavy hypernuclei for the first time with radioactive beams at R3B (GSI). As hypernuclei decay via pion emission, the program is based on the development of a new pion tracker, the HYDRA (HYpernuclei Decay at R3B Apparatus) time-projection chamber, which will allow a broad range of hypernuclear structure studies. It is expected that the Young Investigator Group led by Dr. Meytal Duer takes over a leading role in the development of the HYDRA detector and the physics program at R3B, in close collaboration with the group of Prof. Obertelli.

The project is now in its first phase, construction of a prototype for validation of the HYDRA time-projection chamber. The candidate will participate in the validation measurements at TU Darmstadt and the in-beam validation experiment of the prototype, and will be in charge of the data analysis. At the second phase of the project she/he will take a major part in the development, construction, and simulations of HYDRA. She/He will also participate in the first physics experiment with the full HYDRA and the associated data analysis.

We are looking for an experimentalist nuclear physicist with Master and doctoral degrees in field of experimental nuclear physics. Experience with hardware, data analysis and/or reactions with high-energy radioactive beams would be of advantage for this position. It is expected that the candidate has international research experience and demonstrates a high publication track record at her/his stage of career. Willingness and experience in executing research projects within large collaborations is expected.

The fulfillment of the duties likewise enables the scientific qualifications of the candidate.

The Technische Universität Darmstadt intends to increase the number of female employees and encourages female candidates to apply. In case of equal qualifications applicants with a degree of disability of at least 50 or equal will be given preference. Wages and salaries are according to the collective agreements on salary scales, which apply to the Technische Universität Darmstadt (TV-TU Darmstadt). Part-time employment is generally possible.

By submitting your application, you agree that your data may be stored and processed for the purpose of filling the vacancy. You can find our privacy policy on our webpage.

Applications (in English) including a motivation letter, a CV, as well as university certificates, should be sent in electronic form (as a single pdf) giving the identification number to the Managing Director of the Institute for Nuclear Physics, Professor Dr. Dr. h.c. mult. Norbert Pietralla (gd@ikp.tu-darmstadt.de).

In case of further questions to the scope of this position, please contact Dr. Meytal Duer (mduer@ikp.tu-darmstadt.de) or Prof. A. Obertelli (aobertelli@ikp.tu-darmstadt.de).

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