

General information

Reference: FLNP JINR-PostDoc-2019-09

Workplace : Frank Laboratory of Neutron Physics JINR (FLNP JINR)

Date of publication : November 1st, 2019

Type of Contract : research fellow

Contract Period : 12 – 36 months taking into consideration the results achieved during the 12 months

Expected date of employment : 15 May 2020

Proportion of work : Full time

Remuneration : approximately 30000 USD gross per year paid in rubles. Final amount will be commensurate with qualifications and experience. 13% income tax is applied in accordance with the RF regulations. Social package: see additional information below

Desired level of education: PhD

Experience required 2 to 5 years of postdoctoral experience.

Missions

The FLNP has the priority in discovering UCN in 1968 and a long and successful activity in UCN research.

Development of ultracold neutrons (UCN) and very cold neutrons (VCN) sources on the 3-rd channel of IBR-2 fast pulsed reactor is planned. IBR-2 is a unique reactor with mechanical modulation of reactivity, a power of 1850 MW and a thermal neutron flux of 10^{16} n/cm²/s from the moderator surface in burst.

Activities

The candidate must develop of the conceptual design project for the VCN and UCN source on the 3-rd channel of IBR-2. Parameters of the source should be chosen and established (the geometry, material and temperature of the source converter, the extraction system, neutron protection etc.) during the designing to achieve maximum VCN and UCN fluxes at the experimental hall. Possible supervision of students and internships.

The source of UCN is necessary for realization of methodological studies. Extraction of VCN should allow to start realize scientific program with these neutrons. Parameters of IBR-2 looks very attractive to build pulse source of VCN. The conceptual design project of the source should allow keeping as full as possible the program of experiments on the irradiation of electronics samples, etc

Skills

The candidate should have a PhD in nuclear physics and a proven experience on running experiments in nuclear physics as well as in data analysis. The candidate must have professional knowledge in the fields of neutron physics and physics of ultracold neutrons, to have scientific papers or copyright certificates for inventions on the subject of work is required. Knowledge of principles of engineering work. Software knowledge (CADs, office tools). English proficiency.

Work Context

WORKPLACE: The job will develop in close collaboration with the local specialists at UCN physics in the Sector of investigations of neutron fundamental properties at the Department and specialists of the Department of Spectrometers Complex FLNP. The Sector's total staff is 18 and includes 7 PhD and 4 Doctors in Science. The Department of Neutron Physics's total staff is 123. Possible trips in Russia and outside the country

Constraints and risks

The postdoctoral fellow will be expected to undertake international travel and travel in Russia. During experiments shift work and working on weekends may be necessary. The experiments will be carried out at IBR-2 reactor whereby the necessary authorizations will be attributed following a yearly medical examination arranged by the laboratory.

Additional Information

Applications should include a detailed CV, a brief statement of research interests, list of publications and at least two letters of reference forwarded to Dr. Otilia Ana Culicov culicov@nf.jinr.ru before February 1st 2020.

Social package offered by JINR:

- The employer offers free health insurance covering medical services in the frame of the Russian compulsory medical insurance system.
- The employer will pay no pension insurance.
- The employer can offer accommodation in its own apartments (one-, two- or three-room flat depending on the number of family members) in the limits of availability and the laboratory can partly offset the rent expenses.
- Half price access to the JINR Olympic-size swimming pool and preferential access to the sport infrastructure of JINR.

Short-listed candidates will be invited to an interview, remotely, or in person.