

VACANCY ADVERTISEMENT

INSTITUTION: **Jagiellonian University, Marian Smoluchowski Institute of Physics.**

CITY: **Kraków**

POSITION: **Postdoc**

DISCIPLINE: **Physical Sciences**

POSTED: **22 March 2022**

EXPIRES: **30 June 2022**

DURATION: **1 year (with the option to extend to 2 years)**

WEBSITE:

<https://www.brand.if.uj.edu.pl>

https://www.epj-conferences.org/articles/epjconf/abs/2019/24/epjconf-ppns2019_04001/epjconf-ppns2019_04001.html

More detailed material on request

KEY WORDS: Physics, Particle Physics, Nuclear Physics, weak interactions, cold neutrons, polarization, detection of electrons and protons, gaseous tracking detectors.

DESCRIPTION (field, expectations, comments):

The offered postdoc position is in a framework of an experimental project which aims to perform the best tests of the Lorentz structure of weak interactions in the decay of slow, polarized neutrons. The precision experiment is going to measure yet unexplored transverse polarization of emitted electrons in correlation with the neutron spin and electron and recoil proton momentums. The applied techniques include: (i) electron tracking in a low-Z, low-mass multi-wire drift chamber, (ii) Mott scattering for the electron spin analysis, (iii) time-of-flight measurement of the recoiling protons and (iv) the decay kinematics reconstruction with the identification of the primary and Mott scattering vertices. In the current phase, the experiment is using the strongest polarized cold neutron beam line PF1B dedicated for fundamental neutron physics at the Laue-Langevin Institute, Grenoble, France. The experiment is carried out by the international collaborations BRAND involving physicists from Jagiellonian University in Krakow, Poland, Institute of Nuclear Physics Polish Academy of Sciences, Krakow, Poland, Institute of Radiation Physics, Catholic University in Leuven, Belgium, Laue-Langevin Institute, Grenoble, France, North Carolina State University, Raleigh, USA and Johannes Gutenberg University, Mainz, Germany.

Your duties:

Experimental research in the field of fundamental neutron physics, contribution to scientific publications in the world leading physics journals.

Specific Requirements:

1. PhD (or equivalent, e.g. candidate of science) in Physics, Technical Physics, Nuclear Physics, Particle Physics, or Nuclear Chemistry obtained not before 2015.
2. Current employment at University or in the Scientific Research Institution.
3. Knowledge of and experience with computer simulation, data analysis, digital electronics, vacuum technics (or selection of these). Technical drawing would be advantageous but is not necessarily required.
4. Proficiency in written and spoken English.
5. Proactive research and team work orientation.

Benefits:

Working in a respectable international collaboration and access to the state of the art experimental facilities, technics and methods. The salary will be in accordance with regulations of the National Science Centre, Poland and will total 10'000 PLN (brutto) per month.

Vacancy questions:

If you have any question regarding this vacancy, you may contact:

Prof. dr. habil. Kazimierz Bodek

Leader of the Fundamental Neutron Physics Group

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