Contribution ID: **101** Type: **Poster contribution**

Mott-polarimeter for electron transverse spin component in the BRAND experiment

Exotic, BSM components of the weak interaction will be probed in the BRAND experiment via measurement of correlation coefficients of neutron β-decay. Ultimately, the BRAND detection setup will be able to provide precisely measured eleven correlation coefficients (*a, A, B, D, H, L, N, R, S, U, V*). Among them, seven (*H, L, N, R, S, U, V*) are dependent on the transverse electron polarization, which vanishes in the Standard Model. Coefficients *H, L, S, U* and *V* were never measured before.
Both electrons and protons from β-decay of polarized, free neutrons will be registered in the detection system, permitting the determination of complete kinematics of the decay. Electrons'energy, momentum and transverse spin component are measured in the Mott polarimeter which consists of the Multi-Wire Drift Chamber, a set of scintillation detectors and the Mott scattering target. The electron detection setup is optimized for the low-energy β-particles. The detection of low-energy protons from the β-decay is realized with a system that involves the acceleration and subsequent conversion of protons into bunches of secondary electrons.
In this contribution, results of the first pilot run of the BRAND experiment performed in September-October 2021 at the polarized, cold neutron beam facility PF1B at the Laue-Langevin Institute (ILL) in Grenoble, France will be reported. The emphasis will be put on the description and the performance of the electron detection system.

Author: DHANMEHER, Karishma (Institute of Nuclear Physics, Polish Academy of Sciences (IFJ PAN))

Presenter: DHANMEHER, Karishma (Institute of Nuclear Physics, Polish Academy of Sciences (IFJ PAN))