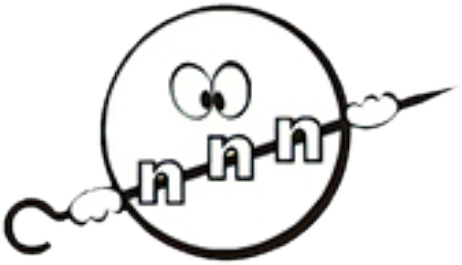

Contribution ID: **61** Type: **not specified**

Modelling of the Forward-Backward Effect in (n, p) Reaction with Slow and Resonance Neutrons on 35Cl

In nuclear reaction induced by slow and resonant neutrons on 35Cl nucleus followed by proton emission, the forward–backward effect was investigated. In the frame of the model of mixing states of compound nucleus with the same spin and opposite parities, cross sections, angular correlations and asymmetry coefficients were evaluated. Using theoretical calculations, measurement of forward–backward effects were simulated taking into account target properties like dimensions, temperature and proton energy loss in the target. From protons spectra, the modeled forward–backward coefficient was obtained and compared with the experimental effect. From theory the highest value of forward–backward effect is about 0.3 but the measured one is about 30-50% lower than expected. The difference should come from the influence of temperature, target properties, background produced by a pulsed neutron source and other factors.

Forward–backward effect together with other asymmetry coefficients represent an important tool in the analysis of symmetry breaking process in the nuclear reactions induced by slow and resonance neutrons generated by weak non-leptonic interaction between nucleons in compound nucleus. In early researches the authors had demonstrated the possibility to obtain only from experimental asymmetry and spatial parity violation effects, the matrix element of the weak non-leptonic interaction.

Primary authors: Dr OPREA, Cristiana (High School Lucuan Blaga Oradea Romania); Dr SANSARBAYAR, Enkhbold (JINR); Dr CHUPRAKOV, Igor (JINR); Dr OPREA, Ioan Alexandru (JINR); GLEDENOV, Yuri M (JINR)

Presenter: Dr OPREA, Ioan Alexandru (JINR)

Session Classification: Poster Session

Track Classification: Poster session