

Joint seminar of the NPI of the CAS

19. 9. 2024

Martin Ansorge (DNR): *Collimated beams of fast neutrons and on-beam nuclear data measurements with CLID system at U-120M facility*

Abstract:

This seminar presents the development and application of the CLID (Chamber for Light Ion Detection) system for nuclear data measurements using collimated fast neutron beams at the U-120M cyclotron facility. The presentation will cover the characterization of the neutron field produced by the p+Be reaction, including spectral measurements using proton recoil telescope (PRT) and time-of-flight (ToF) methods. The design and capabilities of the CLID vacuum chamber, equipped with ΔE -E telescopes for charged particle detection, will be described. The seminar will focus on recent measurements of production double-differential cross-sections (DDCS) for (n,xp) and (n,xd) reactions on carbon and yttrium targets at neutron energies from up to 33 MeV. The experimental setup, data analysis techniques, and results will be discussed, along with comparisons to theoretical TALYS predictions and existing data. The presentation will conclude with an overview of ongoing developments and future plans for collimated fast neutron beams and the CLID system, including improvements in energy resolution.