Contribution ID: **425** Type: **Oral talk (15 min + 5 min questions)**

STUDY OF COULOMB BREAKUP OF 11BE WITHIN THE NON-PERTURBATIVE SEMICLASSICAL AND QUANTUM-QUASICLASSICAL TIME-DEPENDENT APPROACHES

Friday, 15 July 2022 16:20 (20 minutes)

We investigate the Coulomb breakup of 11Be halo nuclei on a heavy target
(208Pb) from intermediate (70 MeV/nucleon) to low energies (5 MeV/nucleon) within the non-perturbative semiclassical and quantum-quasiclassical time-dependent approaches.
To quantify how good the semiclassical approach with decreasing the projectile energy is, we also performed calculations with quantum-quasiclassical approach, which includes the effect of deformation of the projectile trajectory and the transfer of energy from target to projectile and vice versa
during a collision. We also analyse in the frame of this model the influence of the 11Be resonant states 5/2+, 3/2− and 3/2+ on the breakup processes. This analysis demonstrates the possibility of studying low-lying resonances in halo nuclei using their breakup reactions. The method can potentially be useful for interpretation of low-energy breakup experiments on different targets in studying the halo structure of nuclei.

The speaker is a student or young scientist

Yes

Section

1. Nuclear structure: theory and experiment

Primary author: VALIOLDA, Dinara (KazNU/BLTP JINR)

Co-authors: Prof. MELEZHIK, Vladimir (BLTP JINR); Dr JANSEITOV, Daniyar (INP/JINR)

Presenter: VALIOLDA, Dinara (KazNU/BLTP JINR)

Session Classification: Nuclear structure: theory and experiment