Contribution ID: **263** Type: **not specified**

Analysis of 22N + 9Be Reaction Data Through Glauber Model at 700 MeV/u Beam Energy

The one neutron knockout reactions induced by the 22N [1,2] projectile (neutron halo) on the 9Be target at 700 MeV/u lab energy have been investigated by considering the low-lying excited states of projectile 22N (1^- and 2^-) along with different excited states of core 21N. Specifically, the one neutron breakup cross section and width of the outgoing core's longitudinal momentum distribution (LMD) corresponding to all possible projectile configurations have been computed and compared with available data. All the calculations were done using the CSC_GM computer code [3] based on Eikonal approximation to calculate the core fragment's one-neutron removal cross-section and LMD. This code strongly depends upon nucleon-nucleon (NN) interactions and relevant nuclear densities as inputs to calculate the total one-neutron removal cross-section. The predicted one-neutron removal cross-section and LMD width are lying close to the experimental results when one of these configurations {1/2}*1*^- *bigotimes 2s*{1/2} (J^\pi=0^-), {1/2}*1*^- *bigotimes 2s*{1/2} (J^\pi=1^-) and {3/2}*1*^- *bigotimes 2s*{1/2} (J^\pi=2^-) [4,5] represents the structure of 22N.
Further, it is asserted that the measured LMD width has been reproduced by considering the admixture of the s state (70-90%) with the d state (30-10%). So, from these results, we concluded that an admixture of the s and d state configurations reproduced the experimental data.
References
[1] Ozawa et al., Nucl. Phys. A 691, 599 (2001).
[2] C. Rodriguez-Tajes et al., Phys. Rev. C 83, 064313 (2011).
[3] B. Abu-Ibrahim et. al., Comp. Phys. Comm. 151, 369 (2003).
[4] D. Sohler et al., Phys. Rev. C 77, 044303 (2008).
[5] https://www-nds.iaea.org.

Section

Nuclear physics (Section 1)

Primary author: KALIRAMAN, Surender (Deenbandhu Chhotu Ram University of Science and Technology Murthal, Sonepat (Haryana) - 131039, INDIA)

Co-authors: Mr ROHILLA, Jaideep (Deenbandhu Chhotu Ram University of Science and Technology Murthal, Sonepat (Haryana) - 131039, INDIA); Dr KUMAR, Ravinder (Deenbandhu Chhotu Ram University of Science and Technology Murthal, Sonepat (Haryana) - 131039, INDIA)

Presenter: KALIRAMAN, Surender (Deenbandhu Chhotu Ram University of Science and Technology Murthal, Sonepat (Haryana) - 131039, INDIA)

Track Classification: The V International Scientific Forum "Nuclear Science and Technologies": Nuclear physics (Section 1)