

Correlation study of light neutron rich nuclei

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ABSTRACT

Drip line nuclei attract constant interest in the last few decades. It is related with a fact that the properties of these nuclei may differ drastically from the stability valley nuclei. These can be manifested via quite new phenomena which are never seen in the well bound nuclei. Studies of the drip line nuclear can give a clue for the understanding of the details of nuclear interaction. In the light nuclei the border of nuclear stability is more accessible for the experimental investigation.

The recent experiments made in the Flerov Laboratory of Nuclear Research (JINR, Dubna, Russia) are reviewed. These are devoted to the studies of neutron rich hydrogen (^3H) and helium ($^8\text{-}^{10}\text{He}$) isotopes populated in the direct (t,p) and (d,p) reactions in inverse kinematics using radioactive beams. Advanced special feature of these experiments is derivation of the information about correlations, which allowed to identify spin-parity of the states and to resolve long-standing puzzling issues concerning their structure or/and continuum.