DREB2022 - Direct Reactions with Exotic Beams



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Multi α clustering states in 20Ne

Multi α clustering structure in nuclei is an attractive topic in nuclear physics, especially the α condensates. An experiment for ¹²C(¹⁶O,²⁰Ne^{*}) ⁸Be multi-nucleon transfer reaction and cluster-decay was performed at China Institute of Atomic Energy(CIAE) at a beam energy of 6 MeV/u in 2021. A specially designed telescope system played an essential role to measure the breakup alpha particles of ²⁰Ne and the correlated recoil nuclei ⁸Be(2 α). This work aims to find the multi α clustering structure and the condensed states in ²⁰Ne. The reaction Q-value spectra and the excitation spectra were deduced and reconstructed by the detected α particles and the beam energy. We have found several multi α coincidence events in present data analysis, especially triple and quadruple coincidence events, and we are trying to use these events to explore the novel multi α states in ²⁰Ne.

Topic

Experiment

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