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(G) Spectroscopic tests of the spherical vibrational nature of ^{100}Ru

Thursday 30 May 2024 09:00 (15 minutes)

There is renewed interest in the exploration of the nature of low-lying collective excitations in nuclei since several studies have posed serious questions regarding the veracity of multiphonon quadrupole vibrations. A recent survey of nuclei with low-lying states previously believed as having spherical vibrational structure found that very few passed the criteria. Of the few remaining candidates, which included ^{98,100}Ru, the state of the spectroscopic data were insufficient to make conclusions. To address this issue, we have pursued a variety of studies to explore their nuclear structure, including a study on the ^{100}Ru nucleus through a proton-transfer-reaction experiment at the Maier Leibnitz Laboratorium (MLL) facility in Garching, Germany. Using a 22 MeV proton beam, we performed the ^{103}Rh$(p,\alpha)^{100}$Ru reaction and the resulting emitted α particles were analyzed with a Q3D magnetic spectrograph. The results of the experiment, including the angular distributions of the population cross section, will be presented.

Keyword-1

Vibrational Nuclei of 100Ru

Keyword-2

103Rh(p,alpha)100Ru

Keyword-3

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