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(G*) Investigation of States Populated in the 102Ru(p,t) Two Neutron Transfer Reaction

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One of the foremost goals of nuclear physics is to provide an understanding of how nuclei are assembled from the basic constituent building blocks of protons and neutrons. Previous studies have attempted to achieve this by observing the excitations of nuclei under fine tuned experimental conditions with the most advanced detectors available on the planet. Nevertheless, this initiative continues to present as an extraordinarily non-trivial system to investigate. The experiment under discussion herein focuses on the study of 100Ru via a two-neutron transfer reaction experiment that was performed using the Q3D magnetic spectrograph at the Maier-Leibnitz Laboratory, in Garching, Germany, in 2019. The experimental procedure employed the use of a target of 102Ru which was bombarded with protons that would effectively pick-up two neutrons from said target, resulting in the production of 100Ru. Removing a pair of particles from the system affords the study the neutron-pair properties of the states that were observed in the reaction, which in turn renders a more robust understanding of the structure of 100Ru. Results of the analysis of this experiment will be discussed and their future significance will be highlighted.

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