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One-Neutron Transfer into ^{22}Ne (student talk)

Friday, 16 February 2018 10:00 (15 minutes)

In this contribution, we present a preliminary look into a recent neutron transfer experiment done at TRIUMF in July 2017 studying the ^{22}Ne nucleus. ^{22}Ne plays an important role in the nucleosynthesis in asymptotic giant branch stars, with its synthesis competing with the production of ^{19}F through the so called ‘poisoning reaction’, and the following transfer into ^{25}Mg acting as one of the main neutron sources for the s-process. By using the high granularity of the TIGRESS high purity germanium detector array we can confirm the resonance energies, coupled to the SHARC highly segmented silicon detector we can determine the spins for these resonances, and using Doppler shift attenuation method we will constrain lifetimes of resonances down to femtoseconds, all allowing for the reaction rate of ^{22}Ne production in AGB stars to be better defined, giving insight into the low abundance of ^{19}F and a better understanding of nucleosynthesis through the s-process.

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