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Investigation of High-Lying (α, g) Resonances in ^{22}Ne via High-Resolution Gamma Ray Spectroscopy in Inverse Kinematics (G)*

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In asymptotic giant branch (AGB) stars, ^{22}Ne plays an important role in several nucleosynthesis processes, with its production competing with the synthesis 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, affecting the reaction rates of numerous isotopes.

In this contribution, we present a preliminary look into a recent neutron transfer experiment done at TRIUMF in July 2017, studying the high-lying resonances of the ^{22}Ne nucleus. Using TIGRESS, we can accurately determine these resonance energies, utilizing the precision of the HPGe detectors. Alongside this, we can use data taken simultaneously with the SHARC silicon detector to determine the spins for these resonances, and finally, apply Doppler shift attenuation method to constrain the lifetimes of resonances down to femtoseconds.

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