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Investigating the ^{23}Mg(p,γ)^{24}Al Reaction at Astrophysically Relevant Energies with DRAGON SCOTT FOUBISTER, Thompson Rivers University, DRAGON COLLABORATION — The DRAGON (Detector of Recoils and Gammas Of Nuclear Reactions) collaboration at TRIUMF is currently pursuing the first direct measurement of the strength of the most influential resonance (predicted to be at E_{cm} = 473±3 keV) in the ^{23}Mg(p,γ)^{24}Al reaction. This is a challenging experiment due to high beam contamination and very low expected yield. It is made possible thanks to the availability of the most intense accelerated ^{23}Mg beam in the world and the world-class beam suppression & particle identification capabilities of the DRAGON recoil mass spectrometer. Two beta monitors use plastic scintillators to measure the amount of radioactive ^{23}Mg present in a beam contaminated with between 1:1 and 500:1 stable ^{23}Na. Time-of-flight (TOF) detectors in combination with an ionization chamber are used to count the number of ^{24}Al "recoils". In the first phase of this experiment, an upper limit of the resonance strength was calculated that indicates resonance strength much lower than the value predicted by nuclear shell-model estimates.

Scott Foubister
TRIUMF

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