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Direct measurement of several resonance strengths and energies in ^{34}S$(\alpha,\gamma)^{38}$Ar within the $T = 2.2$ GK Gamow window with DRAGON D. CONNOLLY, Colorado School of Mines, P. O'MALLEY, University of Notre Dame, C. AKERS, University of York, A.A. CHEN, McMaster University, G. CHRISTIAN, Texas A&M University, B. DAVIDS, TRIUMF, L.E. ERIKSON, Pacific Northwest National Laboratory, J. FALLIS, TRIUMF, B.R. FULTON, University of York, U. GREIFE, Colorado School of Mines, ULRIKE HAGER, NSCL & Michigan State University, D.A. HUTCHEON, TRIUMF, S. ILYUSHKIN, Colorado School of Mines, A.M. LAIRD, University of York, A. MAHL, Colorado School of Mines, C. RUIZ, TRIUMF — Radiative α capture on ^{34}S can impact nucleosynthesis in several astrophysical environments, including oxygen burning, explosive oxygen burning (Type II supernovae), and Type Ia supernovae. However, there exist discrepancies in the literature for the resonance strengths of two strong resonances within the Gamow window for oxygen burning temperatures ($E_0 \pm \Delta/2 = 3183 \pm 897$ keV at $T = 2.2$ GK). Previous measurements suffered from systematic uncertainties inherent in the experimental technique. Furthermore, there are several states in ^{38}Ar in the energy range of interest for which no ^{34}S + α resonance strength/energy measurements have been performed. This measurement was performed in inverse kinematics at the DRAGON recoil separator at TRIUMF in BC, Canada. DRAGON's experimental technique allows direct measurement of quantities such as stopping power and resonance energy, alleviating the need for external inputs and reducing uncertainty. This talk will discuss DRAGON's experimental technique, analysis methods and results.

Devin Connolly
Colorado School of Mines

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