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Measuring radiative capture rates at DRAGON U. HAGER, Colorado School of Mines, Golden, Colorado, USA, B. DAVIDS, J. FALLIS, TRIUMF, Vancouver, Canada, U. GREIFE, Colorado School of Mines, Golden, Colorado, USA, D.A. HUTCHEON, A. ROJAS, C. RUIZ, TRIUMF, Vancouver, Canada —
The DRAGON recoil separator facility is located at the ISAC facility at TRIUMF, Vancouver. It is designed to measure radiative alpha and proton capture reactions of astrophysical importance in inverse kinematics. The Supernanogan ion source at ISAC provides stable beams of high intensities. The DRAGON collaboration has taken advantage of this over the last years by measuring several reactions requiring high-intensity stable oxygen beams. In particular,the ^{17}O(p,γ) and ^{16}O(α,γ) reaction rates were recently measured. The former reaction is part of the hot CNO cycle, and strongly influences the abundance of ^{18}F in classical novae. Because of its relatively long lifetime, ^{18}F is a possible target for satellite-based gamma-ray spectroscopy. The ^{16}O(α,γ) reaction plays a role in steady-state helium burning in massive stars, where it follows the ^{12}C(α,γ) reaction. At astrophysically relevant energies, the reaction proceeds exclusively via direct capture, resulting in a low rate. In both cases, the unique capabilities of DRAGON enabled determination not only of the total reaction rates, but also of decay branching ratios. Results from both experiments will be presented.

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