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^{30}P$(p,\gamma)^{31}$S reaction rate in novae: lifetimes of ^{31}S states[1] L.J. SUN, C. FRY, MSU, M. ALCORTA, S.S. BHATTACHARJEE, TRIUMF, T. BUDNER, MSU, R. CABALLERO-FOLCH, B. DAVIDS, N. ESKER, L. EVITTS, TRIUMF, M. FRIEDMAN, MSU, A.B. GARNSWORTHY, TRIUMF, B. GLASSMAN, MSU, G. HACKMAN, J. HENDERSON, O. KIRSEBOM, A. KURKJIAN, P. MACHULE, C. PEARSON, TRIUMF, D. PEREZ-LOUREIRO, MSU, C. RUIZ, P. RUOTSALAINEN, J. SMALLCOMBE, TRIUMF, J. SURBROOK, MSU, W. WILLIAMS, TRIUMF, C. WREDE, MSU, S1582 TEAM[2] — In classical novae, the ^{30}P$(p,\gamma)^{31}$S reaction acts as a nucleosynthesis bottleneck. Its reaction rate is dominated by proton capture into narrow ^{31}S resonances. To constrain the resonance strengths, we carried out lifetime measurements of the ^{31}S resonances using the Doppler Shift Lifetime device at the TRIUMF-ISAC facility. The ^{31}S excited states were populated by the ^{3}He$(^{32}$S$,\alpha)^{31}$S reaction. The deexcitation γ rays were detected by HPGe detectors in coincidence with the α particles detected by a Si telescope. The lifetimes for ^{31}S excited states including a resonance in the region of interest were constrained by using the Doppler Shift Attenuation Method.

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[2]M. Bowry, M. Moukaddam, J. Measures, J. Park, D. Southall

L.J. Sun
MSU

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