Resonance strengths in $^{20}\text{Ne}(p, \gamma)^{21}\text{Na}$ and $^{22}\text{Ne}(p, \gamma)^{23}\text{Na}$ and the NeNa cycle\(^1\) STEPHANIE LYONS\(^2\), JOACHIM GOERRES, ANTONIOS KONTOS, ED STECH, MICHAEL WIESCHER, University of Notre Dame — In second-generation stars whose stellar temperature \(T\) is greater than 0.05 GK, Hydrogen burning can proceed also via the NeNa cycle which is important for the nucleosynthesis of the Ne and Na isotopes. The stellar reaction rate for $^{20}\text{Ne}(p,\gamma)^{21}\text{Na}$ is dominated by the Direct Capture and the high energy tail of a subthreshold resonance. The strength of these nonresonant contributions was measured [1] relative to the strength of the resonance at 1.17 MeV. Because of conflicting results for this reference [2], we have remeasured the strength of this resonance relative to the well-known 1.28 MeV resonance in $^{22}\text{Ne}(p,g)^{23}\text{Na}$ using implanted Neon targets. In addition, we also performed an independent measurement of the \(\gamma\) branching ratios and the strength of the $^{22}\text{Ne}(p,\gamma)$ resonance.


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