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Resonance strengths in ^{20}Ne(p, γ)^{22}Na and ^{22}Ne(p, γ)^{23}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}Ne(p,γ)^{21}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}Ne(p,g)^{23}Na using implanted Neon targets. In addition, we also performed an independent measurement of the γ branching ratios and the strength of the ^{22}Ne(p,γ) resonance.

[1] C. Rolfs et al., Nuclear Physics A241, 480 (1975)
[2] J. Keinonen et al., Phys. Rev. C15, 579 (1977)

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