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Reaction Rates for Neutron Capture Reactions on Light sd-shell Nuclei MARY BEARD, MICHAEL WIESCHER, University of Notre Dame, ALBERTO MENGONI, IAEA, B. ALEX BROWN, Michigan State University — Reaction rates of neutron capture cross sections on light nuclei are of great importance to a wide variety of astrophysical nucleosynthesis scenarios. Where experimental data is not available, theoretical estimates of these rates provide a vital basis for inputs into a spectrum of stellar scenarios. Neutron capture reaction rates have been calculated for a range of light sd-shell nuclei, stretching into the neutron rich. The context for the reaction rate calculation has been a hybrid model of compound and direct capture model, where necessary nuclear data, when absent from the literature, has been provided by theoretical shell model calculations.

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