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Sensitivity of p-nuclei abundance calculations to statistical model parameters[1] BRANDON ROACH, ANNA SIMON, Department of Physics, University of Notre Dame — Many reactions relevant to astrophysics involve nuclei far from stability, and their cross sections must therefore be calculated numerically for input into large-scale stellar nucleosynthesis calculations. Recent work, especially regarding p-process nucleosynthesis, has shown that the observed astrophysical abundances of certain nuclides differ by almost a factor of 10 from those predicted by network calculations using accepted reaction rates. Additionally, significant differences between calculated abundances when using different versions of these rates have been obtained. We therefore present the abundances of p-nuclei calculated using the open-source NucNet Tools code for a 25 solar mass type II supernova model, incorporating reaction cross sections calculated using the statistical-model code TALYS using several α optical potentials and γ-strength functions.

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