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Sensitivity of p-Nuclei to (n,g) Reaction Rates DUSTIN SCRIVEN, Department of Physics and Astronomy Michigan State University, National Superconducting Cyclotron Laboratory, Joint Institute for Nuclear Astrophysics, FARHEEN NAQVI, National Superconducting Cyclotron Laboratory, Joint Institute for Nuclear Astrophysics, ARTEMIS SPYROU, Department of Physics and Astronomy Michigan State University, National Superconducting Cyclotron Laboratory, Joint Institute for Nuclear Astrophysics, ANNA SIMON, Department of Physics and the Joint Institute for Nuclear Astrophysics at University of Notre Dame, BRAD MAYER, Department of Physics and Astronomy, Clemson University — The astrophysical p-process, which is responsible for the creation of the proton-rich p-nuclei, is still not well understood. A sensitivity study of p-nuclei abundances to (n,γ) and (γ,n) reaction rates was conducted at the National Superconducting Cyclotron Laboratory using a nuclear reaction network created at Clemson University. This network simulates the explosive shock front of a Type II supernova passing through the oxygen/neon layer of a 25 $M_{\odot}$ star. Reaction rates of many (n,γ) reactions and their inverses were increased and decreased by a factor of 3 and the effects were observed. Probing the sensitivity of p-nuclei abundances aids in pointing out reactions important to the p-process. In turn, this information can be used as a tool to drive experimental research, helping to decrease uncertainties and increase the robustness of p-process and other stellar models.

Dustin Scriven
Dept of Physics and Astronomy,Michigan State University,
National Superconducting Cyclotron Laboratory,
Joint Institute for Nuclear Astrophysics

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