Abstract Submitted
for the APR17 Meeting of
The American Physical Society

Abundances in Astrophysical Environments: Reaction Network Simulations with Reaction Rates from Many-nucleon Modeling[1] CHARLEE AMASON, Agnes Scott College, ALISON DREYFUSS, KRISTINA LAUNEY, JERRY DRAAYER, Louisiana State University — We use the ab initio (first-principle) symmetry-adapted no-core shell model (SA-NCSM) to calculate reaction rates of significance to type I X-ray burst nucleosynthesis. We consider the ^{18}O(p,γ)^{19}F reaction, which may influence the production of fluorine, as well as the ^{16}O(α,γ)^{20}Ne reaction, which is key to understanding the production of heavier elements in the universe. Results are compared to those obtained in the no-core sympletic shell model (NCSpM) with a schematic interaction. We discuss how these reaction rates affect the relevant elemental abundances.

[1]We thank the NSF for supporting this work through the REU Site in Physics Astronomy (NSF grant 1560212) at Louisiana State University. This work was also supported by the U.S. NSF (OCI-0904874, ACI -1516338) and the U.S. DOE (DE-SC0005248).

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Date submitted: 15 Sep 2016 Electronic form version 1.4