Abstract Submitted
for the DNP13 Meeting of
The American Physical Society

Correlated Nuclear Uncertainties in Astrophysical Processes MICHAEL BERTOLLI, Los Alamos National Laboratory, FALK HERWIG, University of Victoria, TOSHIHIKO KAWANO, Los Alamos National Laboratory, MARCO PIGNATARI, University of Basel, NUGRID COLLABORATION — With increasing sophistication of stellar models the role of accurate nuclear physics input has become more important, leading to sensitivity studies of stellar abundances to nuclear reaction rates. While full nuclear uncertainties are available from evaluated nuclear data libraries, there is a need for similarly detailed studies in astrophysics. Including multiple neutron capture rates simultaneously, we show the effect of propagating systematic nuclear uncertainties from different theoretical models to final abundances in the i-process. To consider statistically correlated uncertainties, we similarly perform a full nuclear physics uncertainty study within a given Hauser- Feshbach model and demonstrate the role of correlations on the final stellar abundance uncertainties.

Michael Bertolli
Los Alamos National Laboratory

Date submitted: 17 Jun 2013 Electronic form version 1.4