Contribution ID: **79** Type: **poster**

Sensitivity of X-ray bursts to nuclear reaction rates in a single-zone model

Wednesday, 23 May 2018 16:30 (1h 30m)

We performed X-ray bursts simulations with the ONEZONE single-zone model to evaluate the impact of nuclear reaction rates on the model's results. We vary individual proton and alpha capture rates in a large nuclear reaction network, and asses their effect on the nucleosynthesis and the lightcurve of the simulated bursts. Our work is an extension of the sensitivity study of Cyburt et al [1] to models with a variety of compositions of the accreted material, with a focus on its hydrogen and helium content. We also consider realistic values for the uncertainty of the reaction rates used.

[1] R. H. Cyburt et al, ApJ 830, 55 (2016)

Primary author: ESTRADE, alfredo (CMU)

Co-authors: Dr JACOBS, Adam (Michigan State University); SCHATZ, Hendrik (FRIB - JINA); ELLIOTT, Jacob (Mr.); BOROWIAK, Jessica (Central Michigan University); Dr SCHMIDT, Konrad (National Superconducting Cyclotron Laboratory)

Presenter: ESTRADE, alfredo (CMU)

Session Classification: Poster Session