

NUCLEAR SEMINAR SERIES

Prof. Zach Meisel

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Monday, September 3

4:00 pm - Rm 123 NSH

Made to Order Nuclear Astrophysics

Nuclear astrophysics experiments aim to reduce or remove the most influential nuclear physics uncertainties contributing to models of astrophysical phenomena. For type-I X-ray bursts, targets of study are proton-rich nuclei that participate in hydrogen- and helium-burning reactions that power the X-ray light curve and transmute the atmosphere into a metal-rich composition. However, exactly which properties are of interest for which nuclei depends on the particular astrophysical conditions. Here I will discuss the case of GS 1826-24, the “textbook burster”, presenting recent results from astrophysics model calculations which have been used to reproduce astrophysical conditions mimicking this source. Along with constraints on astrophysical conditions newly obtained from these model calculations, I will present ongoing work regarding the nuclear physics uncertainties to which this source is especially sensitive. I will also discuss ongoing experimental work with stable and radioactive ion beams which my research group is undertaking in order to address these nuclear physics sensitivities.



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