

NUCLEAR SEMINAR SERIES

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Friday, April 5
3:00 pm - Rm 124 NSH

Reaction rates from first principles for x-ray burst nucleosynthesis

In this talk, I will address a long-standing challenge, namely, the emergence from first principles of collectivity and clustering in light to medium-mass nuclei, with implications for reproducing enhanced E2 transitions without effective charges; for the formation of alpha clustering; as well as for the description of proton- and alpha-capture reactions of interest to x-ray burst nucleosynthesis. This is achieved by using physically relevant degrees of freedom within the ab initio symmetry-adapted no-core shell-model framework, which exploits approximate symmetries that dominate nuclear dynamics.



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