

## Simulating X-ray bursts with a radiation hydrodynamics code

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Previous simulations of X-ray bursts, for example, those performed by MESA (Modules for Experiments in Stellar Astrophysics) could not address the dynamical effects of strong radiation, which are important to explain the photospheric radial expansion (PRE) phenomena seen in many XRBs. In order to study the effects of strong radiation, we use SNEC (the SuperNova Explosion Code), a 1D Lagrangian open source code that is designed to solve hydrodynamics and equilibrium-diffusion radiation transport together. Because SNEC is able to control modules of radiation-hydrodynamics for properly mapped inputs, radiation-dominant pressure occurring in PRE X-ray bursts can be handled. Here we present simulation models for PRE XRBs by applying SNEC together with MESA.

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