A new 1D+ simulation pipeline to calculate explosion properties, remnants, and nucleosynthesis yields from core-collapse supernovae

Wednesday 16 October 2024 17:00 (20 minutes)

In this talk, I will introduce STIR, a model that incorporates neutrino-driven convection in 1D simulations of core-collapse supernovae (Couch et al. 2020, Boccioli et al. 2021). This model has the advantage of being more sophisticated than other 1D models adopted for similar studies and is able to reproduce recent results from 2D and 3D state-of-the-art simulations of core-collapse supernovae. Given its relatively small computational cost, this 1D model can be used to set up a robust pipeline to efficiently run hundreds (or even thousands) of simulations. I will highlight some recent work performed with this pipeline, and comment on ongoing work to analyze the nucleosynthesis signature of hundreds of pre-SN progenitors with different metallicities, and binary properties, computed with different stellar evolution codes.

Length of presentation requested

Oral presentation: 17 min + 3 min questions

Please select a keyword related to your abstract

Stellar Models and Galactic Chemical Evolution

Author: BOCCIOLI, Luca Presenter: BOCCIOLI, Luca Session Classification: Afternoon session