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Towards 3D Simulations of Theoretical CCSNe Populations

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Using Fornax, we have provided a broad suite of almost a dozen high-fidelity 3D simulations of core-collapse supernovae, spanning $9 - 60 \, \mathrm{M}_\odot$ in progenitor mass. Such a plethora of simulations, many through one second postbounce, allows us to probe the detailed dependence of explosion outcome on progenitor profile, grid resolution, and neutrino microphysics as well as study emergent neutrino and gravitational wave signatures. Building on communal efforts, we are now poised to transition from individual case studies to population studies of CCSNe phenomenology in 3D.

Keywords

Core-Collapse Supernovae

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