Neutrino signal predictions from 3D MHD simulations of core-collapse supernovae

Friday, 21 June 2024 17:30 (2 hours)

Systematic studies of core-collapse supernovae (CCSNe) have been conducted based on hundreds of one-dimensional artificial models (O'Connor & Ott 2011,2013; Ugliano et al. 2013, Ertl et al. 2015) and two-dimensional self-consistent simulations (Nakamura et al. 2015;2019, Burrows & Vartanyan 2020). We have performed three-dimensional magnetohydrodynamic simulations for the core-collapse of 16 progenitor models covering ZAMS mass between 9 and 24 solar masses. Our CCSN models show a wide variety of shock evolution, explosion energy, as well as multi-messenger signals including neutrinos. We present the dependence of the neutrino properties on the progenitor structure.

Poster prize

No

Given name

Ko

Surname

Nakamura

First affiliation

Fukuoka University

Second affiliation

Institutional email

nakamurako@fukuoka-u.ac.jp

Gender

Male

Collaboration (if any)

Primary author: NAKAMURA, Ko (Fukuoka University)

Co-authors: Prof. MATSUMOTO, Jin (Fukuoka University); Prof. KOTAKE, Kei (Fukuoka University); Prof. TAKIWAKI, Tomoya (NAOJ)

Presenter: NAKAMURA, Ko (Fukuoka University)