

Simulations of core collapse supernova with QCD phase transition

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One of the major uncertainties in core-collapse supernova phenomenology lies in the equation of state at high densities. Of particular interest is the possibility of a first-order phase transition from hadronic matter to deconfined quark matter—a topic that has recently gained attention due to its potential observational signatures in neutrinos and gravitational waves [1–7]. In this talk, I will present recent results on QCD-driven supernova explosions, as well as cases of failed explosions leading to black hole formation, with an emphasis on their observable signatures.

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Primary author: KHOSRAVI LARGANI, Noshad (University of Wroclaw)

Presenter: KHOSRAVI LARGANI, Noshad (University of Wroclaw)

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