

ICTS Seminar

- Title : Core Collapse Supernova: Role of Hyperonic matter
- Speaker : Prasanta Char, Inter-University Centre for Astronomy and Astrophysics, Maharashtra
- Date : Wednesday, March 1, 2017
- Time : 11:30 AM
- Venue : Emmy Noether Seminar Room, ICTS Campus, Bangalore
- Abstract : The equation of state (EoS) of hot and dense matter plays a fundamental role in the understanding of core-collapse supernova (CCSN). A phase transition from hadronic to exotic phases might occur in the early post-bounce phase of a CCSN. However, most of the widely used EoSes either do not have exotic components or do not satisfy the recent observational limit of two solar mass even if they have those components. Recently, we have calculated an EoS that includes Lambda hyperons and is compatible with recent observations. In this work, we study the dynamical collapse of a non rotating massive star to a black hole using the aforementioned and other available relativistic EoSes. We use 1D general relativistic hydrodynamic code GR1D for our numerical simulations and investigate, in detail, the effect of hyperon on the metastability of the protoneutron star, black hole formation adopting progenitor models of Woosley et. al with solar metallicity.