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TATA INSTITUTE OF FUNDAMENTAL RESEARCH

ICTS Seminar

- Title : Star clusters: a versatile laboratory for astrophysical phenomena
- Speaker : Sambaran Banerjee, University of Bonn, Germany
- Date : Tuesday, April 16, 2019
- Time : 3:30 PM
- Venue : Nambu Discussion Room (Left), ICTS Campus, Bangalore
- Abstract : Star clusters serve as a factory of a variety of astrophysical phenomena by virtue of their high density of stars and a deep potential well, promoting close encounters. In this talk, I shall focus on one highly-contextual aspect that interests me greatly, namely, stellar-remnant black holes (BH) in clusters. Through dynamical interactions, such BHs in dense stellar clusters trigger general-relativistic inspiral and merger of binary black holes (BBH), detectable by LISA and LIGO-Virgo. In my studies, state-of-the-art schemes for stellar wind and remnant formation are adopted in model star clusters which are evolved ab initio via direct N-body computations. The BBH mergers obtained in these computations show the prominence of in-cluster, triple-mediated mergers and are consistent with the to-date LIGO-observed BBH merger events. I shall also touch upon our other star cluster-related works such as runaway massive stars from young clusters, stellar collision products, and birth conditions of clusters.