ICTS Seminar

Title : Numerical Relativity in the future: Discontinuous Galerkin methods and Task-based Parallelism

Speaker : Prayush Kumar, Cornell University, New York

Date : Thursday, June 21, 2018

Time : 2:00 PM

Venue : Emmy Noether Seminar Room, ICTS Campus, Bangalore

Abstract : Current generation of Numerical Relativity codes that rely on spectral methods achieve high-order accuracy when solutions are smooth, but are unable to handle the formation of discontinuities when matter is present. In addition, they parallelize computation by distributing domain cells across processors while synchronizing them according to a global simulation time. This quickly becomes inefficient when computations become heterogeneous, such as for high mass-ratio binaries. In this talk I will describe how a new relativistic astrophysics code SpECTRE aims to address these two fundamental issues by combining a discontinuous-Galerkin method with a task-based parallelism model.