INDIAN ASSOCIATION FOR THE CULTIVATION OF SCIENCE
2A & 2B, Raja S.C. Mullick Road, Jadavpur, Kolkata-700032, India

Seminar Notice

Org. by

School of Physical Sciences

Title:	**Application of dynamical system technique in f(R) cosmology**
Speaker:	**Saikatnil Chakraborty, IIT Kanpur**
Date:	**September 16, 2019 (Monday)**
Time:	**16:00**
Venue:	**Physics Seminar Room (C-406), 3rd Floor, Centenary Building, IACS**
Abstract:	Since any relativistic theory of gravity essentially gives rise to a nonlinear dynamics, import of dynamical systems approach to study gravitational systems, especially cosmology, in general relativity or modified gravity, has a history of quite a few decades as of now. Most of such works deals with homogeneous and isotropic FLRW cosmology as relevant at large scale of the universe, and uses 'expansion normalized' dimensionless dynamical variables. However, nothing prevents the very early universe, either in inflationary or in nonsingular bouncing paradigm, to be slightly anisotropic or inhomogeneous, as long as one prescribes a homogenization or isotropic mechanism within the paradigm. My talk will be based on two of my works (1805.03237 & 1812.01694), which attempts to extend the dynamical systems formulation of f(R) cosmology to homogeneous and anisotropic Bianchi-I spacetime. The first of these works employs the usual expansion normalized dimensionless dynamical variables to construct a phase space and extracts some important results regarding f(R) cosmology, an example being the attractor nature of Starobinski solution. The second work presents an alternative dynamical system formulation and for the first time addresses the issue of the dynamical equivalence of conformally related descriptions of f(R) gravity from the phase space point of view.

All are cordially invited to attend the seminar