S N BOSE NATIONAL CENTRE
FOR BASIC SCIENCES
Block JD, Sector III, Salt Lake, Kolkata 700 106

DEPARTMENTAL SEMINAR

Department of Astrophysics and High Energy Physics

16th January,2024 **11.30 AM** **FERMION / ONLINE**

SPEAKER

Dr. Sk Minhajur Rahaman,
Post-Doctoral Fellow, University of Israel

TITLE OF THE TALK

Role of internal shocks in astrophysics

ABSTRACT

Internal shocks are ubiquitous in various astrophysical scenarios which involve out flowing material. The material in the outflow moves with different speeds. The faster material collides with the slower material at a distance from the progenitor object. Each such collision launches a pair of shock fronts - reverse shock front propagating into the faster material and a forward shock front propagating in the slower material. The internal energy dissipation and the shock crossing times are distinctly different in both shocked regions. In this talk, I will present a generic hydrodynamic phase space of internal shocks in both ultra-relativistic and Newtonian domains. As a particular application, I will show how key features (light curves, instantaneous and time-integrated spectra) in the prompt-phase of gamma-ray bursts can be understood within the framework of internal shocks.

HOST FACULTY

Dr. Ramkrishna Das, Associate Professor
Dept. of ASTROPHYSICS AND HIGH ENERGY PHYSICS

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