



**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

11th January, 2023

11.30 AM

ONLINE/ FERMION

SPEAKER

Dr. Upamanyu Moitra,

Postdoctoral Fellow

High Energy, Cosmology and Astroparticle Physics Section

The Abdus Salam International Centre for Theoretical Physics,

Strada Costiera, Italy

TITLE OF THE TALK

Self-Similar Gravitational Dynamics, Singularities and Criticality in 2D

ABSTRACT

In the talk, I will discuss continuously self-similar gravitational dynamics in $1+1$ spacetime dimensions. I will show how the assumption of self-similarity fixes the form of the two-dimensional theory, two classes of which are well-known in the literature. I will discuss some exotic static solutions and how inclusion of matter fields leads to non-trivial dynamics. I will argue for the occurrence of singularities based on a simple feature of differential equations. Time permitting, I will also discuss numerical work relating to dynamics of matter field collapse.

HOST FACULTY

Dr. S. Gangopadhyay, Associate Professor

ASTROPHYSICS AND HIGH ENERGY PHYSICS
