



**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

20th April, 2023

3.00 PM

ONLINE/ FERMION

SPEAKER

**Dr. Chiranjeeb Singha,
Research Associate
Theory Division, Saha Institute of Nuclear Physics**

TITLE OF THE TALK

Strong cosmic censorship conjecture for a charged BTZ black hole

ABSTRACT

The strong cosmic censorship conjecture, whose validation asserts the deterministic nature of general relativity, has been studied for charged BTZ black holes in three-dimensional general relativity, as well as for Nth-order pure Lovelock gravity in $d=2N+1$ spacetime dimensions. Through both analytical and numerical routes, we have computed the ratio of the imaginary part of the quasi-normal mode frequencies with the surface gravity at the Cauchy horizon. The lowest of which corresponds to the key parameter associated with the violation of strong cosmic censorship conjecture. Our results demonstrate that this parameter is always less than the critical value (1/2), thereby respecting the strong cosmic censorship conjecture. This is in complete contrast to the four or, higher-dimensional black holes, as well as for rotating BTZ black holes, where the violation of strong cosmic censorship conjecture exists.

HOST FACULTY

**Dr. S. Gangopadhyay, Associate Professor
Dept. of ASTROPHYSICS AND HIGH ENERGY PHYSICS**
