



**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**

**5<sup>th</sup> December, 2023**

**11.30 AM**

**FERMION / ONLINE**

### **SPEAKER**

**Dr. Arka Santra,  
Post-Doctoral Fellow,  
Weizmann Institute of Science, Israel**

### **TITLE OF THE TALK**

**Probing New Physics at the LUXE Experiment**

### **ABSTRACT**

The proposed Laser Und XFEL (LUXE) Experiment at DESY, Hamburg, aims to probe QED in the strong field non-perturbative regime. This regime will be created in collisions between high-intensity laser pulses and high-energy electron or photon beams from the EuXFEL setup. This experiment offers a unique opportunity to probe physics beyond the standard model. In this talk, it is described that with the help of the large photon flux generated at LUXE, axion-like particles can be probed up to a mass of 350 MeV and with a photon coupling of  $3 \times 10^{-6} \text{ GeV}^{-1}$ .

This reach in parameter space is comparable to the projected reach of future experiments like FASER2 in the HL-LHC and NA62 in the dump mode.

### **HOST FACULTY**

**Dr. Parijat Dey, Assistant Professor  
Dept. of ASTROPHYSICS AND HIGH ENERGY PHYSICS**

\*\*\*\*\*