



**S N BOSE NATIONAL CENTRE  
FOR BASIC SCIENCES**

*Block JD, Sector III, Salt Lake, Kolkata 700 106*

# **DEPARTMENTAL SEMINAR**

## **Astrophysics and Cosmology**

**04<sup>th</sup> March, 2022**

**3.30 PM**

**ONLINE**

**SPEAKER ::**



**Dr. Lokesh Dewangan, Assistant Professor,  
Astronomy & Astrophysics Division, Physical Research Laboratory  
(PRL), Ahmedabad, India**

### **TITLE OF THE TALK**

**PROBING THE PHYSICAL PROCESSES INVOLVED IN FORMING MASSIVE STARS**

### **ABSTRACT**

MASSIVE OB-TYPE STARS ( $M > 8 M_{\text{SUN}}$ ), THROUGH ULTRAVIOLET (UV) RADIATION, STELLAR WINDS, RADIATION PRESSURE AND SUPERNOVA EXPLOSIONS, HAVE SHAPED THE FORMATION AND EVOLUTION OF GALAXIES. HOWEVER, THE PROBLEM OF MASSIVE STAR FORMATION (MSF) IS STILL UNSETTLED. MASSIVE STARS ARE OFTEN LOCATED IN EMBEDDED AND CROWDED ENVIRONMENTS, ASSOCIATED WITH OUTFLOWS AND JETS, AND SEEN AT JUNCTIONS OF DUST AND MOLECULAR FILAMENTS (I.E., HUB-FILAMENT SYSTEMS). IN PARTICULAR, A HUB-FILAMENT SYSTEM HAS BEEN THOUGHT AS THE IMPORTANT OBSERVATIONAL SITE, WHERE SEVERAL PARSEC-SCALE FILAMENTS INTERSECT THE CENTRAL DENSER REGIONS. THE PHYSICAL PROCESSES INVOLVED IN THE TRANSFER OF MASS FROM PARSEC-SCALE CLUMPS TO MASSIVE STAR-FORMING CORES REMAIN ELUSIVE. IN THIS RELATION, ONE NEEDS TO IDENTIFY THE EMBEDDED FILAMENTS ALONG WITH THE CENTRAL HUB AND TO EXPLORE THE INNER ENVIRONMENTS OF THE CENTRAL HUB HOSTING MASSIVE OB-TYPE STARS. IN THIS TALK, I WILL PRESENT SOME IMPORTANT OBSERVATIONAL FINDINGS, WHICH PROVIDE NEW INSIGHTS INTO THE FORMATION OF MASSIVE STARS.

### **HOST FACULTY**

**Dr. Ramkrishna Das**

Associate Professor & Seminar Coordinator, Astrophysics & Cosmology

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