

## **Students' Annual Seminar**

### **Vacancy-ordered double perovskite as a photo-electrocatalyst for efficient hydrogen generation**

**Amogh K Ravi**

Vacancy-ordered double perovskites (DPs) represent a promising class of lead-free perovskite variants with exceptional air and moisture stability. However, their synthesis and thin film formation pose several challenges. To address this, we have developed a novel electrochemical method for perovskite thin film formation that enables morphology control by adjusting electrochemical parameters. Our research shows that thin films of Caesium Palladium Iodide DP exhibit great potential as a photo-electrocatalyst for hydrogen generation, enabling stable hydrogen production for up to 24 hours. We determined the hydrogen generation efficiency to be 7.5% under white light and 2.3% under infrared light. Furthermore, we have investigated the catalyst's self-regeneration mechanism under light exposure, which is of particular interest from a mechanistic standpoint.

***Friday, Mar 31<sup>st</sup> 2023***

***11:00 AM***

***Seminar Hall, TIFR-H***