

## **Students' Annual Seminar**

### **Understanding the role of oxygen in zinc-anode passivation for Zn-air (O<sub>2</sub>) batteries**

#### **Subhra Ranjita Pattanayak**

Zinc-air (O<sub>2</sub>) battery (ZAB) is an emerging battery technology owing to its high energy density, high abundance of zinc, and safe-operation in comparison with conventional Li-ion batteries (LIBs). Till present, there exists a widespread research on the improvement in performance of different components of ZABs including anode, cathode, and electrolyte. It is well known that in ZABs oxygen acts as one of the reactive components undergoing ORR (oxygen reduction reaction) at the cathode during the discharge process. However, understanding the influence of the dissolved oxygen on the zinc-anode is not conducted yet. In this talk, some of the observations related to this long-ignored aspect will be discussed where the potential of using air, comprising of nearly 20% oxygen, as the active component is highlighted in place of pure oxygen. Along with this, further possibilities in improving the Zn-air battery energy density will be discussed and this will lead to the future works in this direction.

***Friday, May 19<sup>th</sup> 2023***

***10:00 AM (Tea / Coffee 09.45 AM)***

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