

## **Seminar**

### **Covalent and Non-Covalent Mesoscopic Interfaces of Atomic Layers and Carbon Nanotubes for Electrochemical and Electronic Applications**

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Controlled assembly of mesoscopic structures can bring interesting properties due to their novel-interfaces. In our studies, a few such mesoscopic interfaces are developed and studied for their various applications. These include non-covalent interfaces - where they are made via van der Waals interactions, and covalently connected interfaces - where structured nanomaterials such as carbon nanotubes (CNTs) are interconnected covalently using small molecules. In this talk, the main emphasis will be given to the electrocatalytic activities of such mesoscopic interfaces where we used them for hydrogen production, oxygen reduction reaction, oxygen evolution reaction and CO<sub>2</sub> reduction reaction. Detailed theoretical and experimental studies are conducted to unravel the mechanism of enhanced activity of such heterostructures. Finally, electron transport through the covalently interfaced CNTs is studied and their plausible applications as molecular switches are explored.

***Wednesday, Feb 6<sup>th</sup> 2019***

***4:00 PM (Tea/Coffee at 3:30 PM)***

***Auditorium, TIFR-H***