

## **Colloquium**

### **Covalent and Non-covalent Polymers: Syntheses and Applications**

**Kana M Sureshan**

**IISER-Thiruvananthapuram**

Polymers have transformed the world forever. Based on how the monomers are connected, polymers can be divided as covalent polymers and non-covalent polymers. While the linkage in the former is strong and irreversible, it is weak and reversible in the case of non-covalent polymers. Both have advantages and disadvantages. The reversibility, order and the weak linkage of non-covalent polymers are often advantageous for some applications. Exploiting these features, we have developed a few non-covalent polymers (gls) and demonstrated their application in soft optics, oil spill recovery, CO<sub>2</sub> absorption, deionization of water etc. In some cases the covalent polymers were used as such, in some cases we have transcribed the fragile gel structure to more robust polymers and in some case we have used a blend with covalent polymers.

The properties of solid materials are decided by their molecular packing. Order imparts special properties to materials and polymers are no exception. However the polymer products formed in traditional solution-phase polymer synthesis are usually amorphous in nature. Thus there is huge interest in synthesizing ordered polymers. We have approached this problem by synthesizing covalent polymers in the solid state by the way of topochemical reactions. We have synthesized several ordered polymers by topochemical reactions and applications of a few have been demonstrated. In this talk, I will be giving glimpse of our work on these areas.

***Wednesday, Dec 5<sup>th</sup> 2018***

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

***Auditorium, TIFR-H***