



**TIFR Centre for Interdisciplinary Sciences,  
Narsingi, Hyderabad 500075**

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**Seminar**

**Application of Self-Assembly Strategies in Artificial  
Photosynthesis**

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**Abstract:** The effective production and storage of non fossil-based, environment-friendly fuels is one of the biggest challenges ever faced by modern science.<sup>1</sup> Molecular artificial photosynthesis is one promising strategy aimed at solving this problem by synthetically mimicking the light-capture, charge-separation, and water-splitting functions of Nature using molecular components. Metallosupramolecular nano-cages provide nice opportunities to study reactive molecules or catalysts within unique steric and electronic environments by means of host-guest chemistry, while self-assembly along a self-sorting algorithm offer prospects to assemble multiple different components. Photo-active hosts are promising in the area of artificial photosynthesis and can be used to investigate photocatalysis (water-splitting in presence of sunlight). Finally the “holy grail” of the field, integration of various components (photo-sensitizer, oxygen evolving complex and hydrogen evolving complex) of artificial photosynthetic system could be achieved via self-sorting. Towards the goal, various photoactive hosts were fabricated and guest-encapsulation behaviors of the hosts were investigated.<sup>5</sup> The principle of self-sorting algorithm has been emphasized by assembling five different components into single assembly.

***Date: Tuesday, January 15<sup>th</sup> 2013***

***Time: 11:30AM (Tea/Coffee at 11:15AM)***

***Venue: Conference Hall, TCIS***

***All are cordially invited***