



**DEPARTMENT OF CHEMISTRY  
PONDICHERRY UNIVERSITY**

Invites you to the lecture on

**" A Systematic Study of the Factors Influencing  
the Formation of Metal Organic Coordination  
Networks via Self-Assembly Reactions "**

By

**Dr. Sanjay Mandal**

Department of Chemical Sciences  
IISER, Mohali

**Date: 17-04-2013 (Wednesday) 3.30 PM**

**Venue:** Department of Chemistry, Seminar Hall

ALL ARE WELCOME

*for Responsibil.*

(Prof. K. Anbalagan)  
(HOD)

**PROFESSOR & HEAD  
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**Abstract:** In recent years a large number of metal organic coordination networks (MOCNs) has been designed and developed for a variety of applications, such as catalysis, separation, sensors, gas storage, luminescent materials, ion exchange, magnetism, etc.<sup>1-5</sup> These MOCNs are held together through various interactions, such as metal-donor atom coordinate bonds, strong and/or weak hydrogen bonds,  $\pi$ - $\pi$  stacking of aromatic moieties, C-H...O interactions, etc. These MOCNs are prepared from a variety of metal centers or metal atom clusters and multi-atom organic linkers. Ancillary ligands that are part of metal centers play an important role in the formation of MOCNs as the number of open sites available at the metal center depends on the denticity and binding of the ancillary ligand which determines the dimensionality of the MOCN. However, it is a challenge to not have a polydentate ancillary ligand, which itself can satisfy the usual coordination number of a transition metal ion, associated with the metal ion in a 1:1 (for hexadentate) or 1:2 (for tridentate) ratio generating a discrete molecule instead of the desired polymeric MOCNs. Thus the selection of ancillary ligands along with the multi-atom organic linkers is crucial in forming MOCNs for the above-mentioned applications.

For the divalent transition metal ions, we have conducted a systematic study to identify and utilize the factors influencing the formation of new MOCNs with multidentate ancillary ligands and multi-atom carboxylate linkers. In this talk, I will present the recent findings from my laboratory.<sup>6</sup>

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