

## PhD Open Seminar

- Speaker** : P Srinivasulu (Ph.D Advisor: Dr. Sanjit Konar)
- Topic of Seminar** : Functional Metal-Organic Frameworks for Heterogeneous Catalysis
- Date** : June 30, 2016
- Time** : 4.00 PM
- Venue** : AB-II (401)

### Abstract

Metal–Organic Frameworks (MOFs) have emerged as versatile materials in the field of heterogeneous catalysis owing to their poor solubility in common solvents and uniform tunable pore sizes. Like other heterogeneous catalysts, MOFs allow for easier post-reaction separation and recyclability than homogeneous catalysts. Up to now four diverse strategies have been established for the MOF-based catalysis such as (i) catalysis at the metal nodes (ii) catalysis at the organic linker (iii) catalysis at the privileged metal centre and (iv) multifunctional catalysis. In this thesis work, first chapter describes a brief introduction of MOFs and its applications in heterogeneous catalysis. In second chapter, A series of copper based MOFs has been synthesized and employed them as catalysts in the formation of C-C bond.<sup>1,2</sup> In third chapter, the strategic exchange of metal nodes in a MOF was done with the Pd(II) ions to develop a heterogeneous catalyst. The modified MOF (Pd-MOF) proved to be an excellent catalyst in the formation of C-C bond *via* cleavage of un-reacted C-N bond of arylhydrazines.<sup>3</sup> In final chapter, in a new concept an iodine loaded amine functionalized MOF was employed as a syringe pump for the slow release of iodine as a catalyst in the synthesis of thienyl dipyrromethanes under ambient conditions.<sup>4,5</sup>

### References:

1. **Parshamoni, S.**; Sanda, S.; Jena, H. S.; Konar, S, *Dalton Trans.* **2014**, *43*, 7191-7199
2. **Parshamoni, S.**; Telangae, J.; Sanda, S.; and Konar, S, *Chem. Asian J.* **2016**, *11*, 540–547
3. **Parshamoni, S.**; and Konar, S, Manuscript Submitted
4. **Parshamoni, S.**; Sanda, S.; Jena, H. S.; Konar, S, *Chem. Asian J.* **2015**, *10*, 653-660
5. Rangaraj, P.; **Parshamoni, S.**; Konar, S, *Chem. Commun.* **2015**, *51*, 15526-15529