# PhD Open Seminar

**Topic of Seminar: "Synthetic Applications of Pyridazine Derived Metallocarbenes & A Novel [3+1+1] Annulation of Rhodium Enalcarbenoids With Vinylazides"**

Speaker: **Vinaykumar Kanchupalli (Thesis advisor: Dr. Sreenivas K.)** Roll No: **1020202**

Date: **Dec 21, 2015** Time: **4:00 PM** Venue: **AB-II, Room No. 401**

## Abstract

**N**itrogen-rich heterocyclic compounds have emerged as safe alternative resources of diazo compounds for various denitrogenative transition-metal-catalyzed reactions.[1] In particular, 1,2,3-triazole derived imino-carbene discovered by Gevorgyan and Fokin and the 1,2,3-benzotriazine derived aza-metallacycle introduced by the Murakami group have stimulated significant developments in the synthetic chemistry.[1] Thus, in view of their rapidly increasing synthetic importance, the quest for newer classes of nitrogen rich heterocycles that offer unique reactivity towards denitrogenative metal catalyzed reactions would be highly useful.

In my Ph.D dissertation, pyridazine N-oxides have been demonstrated for the first time as the precursors for the acceptor and donar-acceptor classes of novel (*E*)-metalloenalcarbenes. These heterocyclic compounds have been employed in the transannulation with pyrroles and Doyle-Krimse transformations of allyl & propargyl sulphides.[2,3] In continuation of our ongoing studies on the synthetic applications of diacceptor enalcarbenoids,[4] the thesis work also involves the discovery of a novel [3+1+1] cycloaddition reaction of di-acceptor rodium enalcarbenoids with vinylazides leading to dihydroproline derivatives.[5] An early stage research work carried out on the [2+2] cycloaddition reaction of allenals with trifluoroacephenones also included in the thesis.[6]

**References:**

1. (a) Horneff, T.; Chuprakov, S.; Chernyak, N.; Gevorgyan, V.; Fokin, V. V. *J. Am. Chem. Soc.* **2008**, *130*, 14972; (b) Chuprakov, S.; Hwang, F. W.; Gevorgyan, V. *Angew. Chem., Int. Ed.* **2007**, *46*, 4757; (c) Miura, T.; Yamauchi, M.; Murakami, M. *Org. Lett.* **2008,** *10*, 3085; (d) Chattopadhyay, B.; Gevorgyan, V. *Angew. Chem. Int. Ed.* **2012**, *51*, 862; (b) Davies, H. M. L.; Alford, J. S. *Chem. Soc. Rev.* **2014**, *43*, 5151.
2. **Kanchupalli, V.**; Joseph, D.; Katukojvala, S. *Org. Lett.* **2015,** *17*, 5878.
3. **Kanchupalli, V.;** Katukojvala, S. (*Manuscript in preparation*).
4. (a) Dawande S. G.; **Kanchupalli, V.**; Kalepu, J.; Chennamsetty, H.; Lad, B. S.; Katukojvala, S. *Angew. Chem., Int. Ed*. **2014**, *53*, 4076; (b) Dawande, S. G.; **Kanchupalli, V.**; Lad, B. S.; Rai, J.; Katukojvala, S. *Org. Lett*. **2014**, *16*, 3700.
5. **Kanchupalli, V.**; Katukojvala, S. (*Manuscript in preparation*).
6. **Kanchupalli, V.;** Katukojvala, S. (*Manuscript in preparation*).

*All are cordially invited to attend*