

## **Internal Seminar**

### **Utilization of N-Heterocyclic olefin for the synthesis of bent allenes and Push-Pull alkenes**

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N-heterocyclic olefin (NHO) represents a special class of organic ligands with strong donor properties than NHC's. The NHO's were first reported by Kuhn and co-workers in 1990s, who showed the formation of stable adducts between diamino olefin  $[(\text{MeCNMe})_2\text{C}=\text{CH}_2]$  and  $\text{BH}_3$ ,  $\text{M}(\text{CO})_5$  ( $\text{M} = \text{Mo}, \text{W}$ ).<sup>1</sup> The exo cyclic carbon atoms of NHO bear an extensive amount of electron density which is responsible for its highly nucleophilic property. NHO also possess strong Lewis basic property as revealed by the analysis of the IR vibration frequencies of a range of  $[\text{RhCl}(\text{CO})_2\text{L}]$  complexes.<sup>2</sup> Despite the unusual properties of NHO it has not been widely studied. Herein, we have reported two projects based on NHO. The first one is the preparation of bent acyclic allene (A Carbodicarbene)<sup>3</sup> from NHO-CAAC dimer as the starting precursor. In the 2<sup>nd</sup> project we have reported C-F activation<sup>4</sup> by NHO for the synthesis of push-pull alkenes.

#### **Reference:**

1. Kuhn, N.; Bohnen, H.; Kreutzberg, J.; Bläser, D.; Boese, R. J. Chem. Soc., Chem. Commun. 1993, 1136-1137.
2. Furstner, A.; Alcarazo, M.; Goddard, R.; Lehmann, C. W. Angew. Chem. Int. Ed. 2008, 47, 3210-3214.
3. Dyker, A. C.; Lavallo, V.; Donnadiou, B.; Bertrand, G. Angew. Chem. Int. Ed. 2008, 47, 3206-3209.
4. (a) N. Kuhn, et al. Z. Naturforsch., B: J. Chem. Sci., 1998, 53, 881-886. (b) Pait, M.; Kundu, G.; Tothadi, S.; Karak, S.; Jain, S.; Vanka, K.; Sen, S. S. Angew. Chem. Int. Ed. 2019, 58, 2804-2808.

**Friday, Feb 21<sup>st</sup> 2020**

**11:30 AM (Tea/Coffee at 11:00 AM)**

**Seminar Hall, TIFR-H**