

Ph.D. Open Seminar
Department of Chemistry

Title of Seminar: *N*-heterocycle synthesis and remote functionalizations *via* Pd-catalysis

Speaker: **Gaurav Saini**
Date: **January 2, 2020**

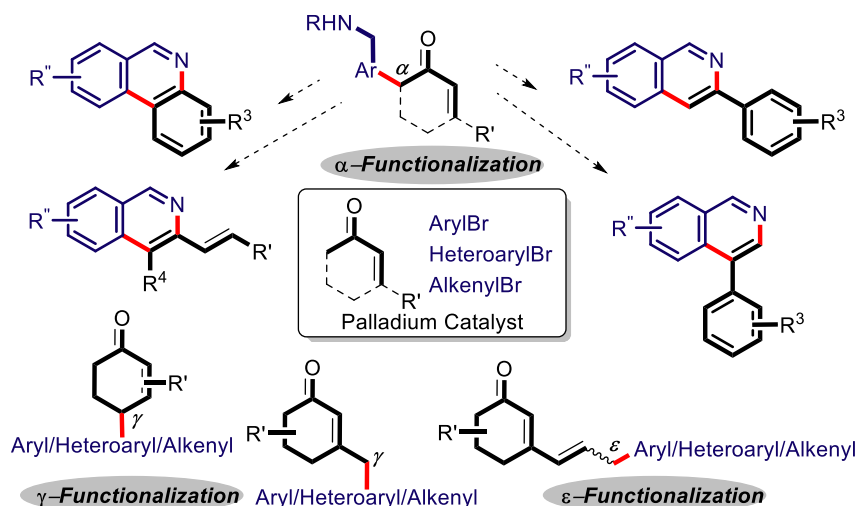
Time: **4:00 PM**

Roll No.: **1410203**
Venue: **AB 2-401**

Abstract

A cross-coupling reaction is one of the fundamental organic transformations in which two or more fragments are combined together with the aid of a transition metal catalyst. Transition metal-catalyzed α -arylation of enolizable carbonyl compounds is a versatile reaction of tremendous synthetic utility. This reaction belongs to a rare class of cross-coupling reactions that form a sp^2 - sp^3 C-C bond.¹ Isoquinolines are one of the most significant scaffolds in natural products, organic materials, paints, and dye industries. We have developed a synthetic methodology in which different classes of isoquinolines and phenanthridines have been accessed by palladium-catalyzed α -arylation of silylenol ethers of enones, ketones, and aldehydes.²

Apart from proximal functionalization, remote functionalization *via* the formation of a C-C bond is one of the most challenging aspects of synthetic organic chemistry.³ Biologically relevant molecules or pharmaceuticals can be derived from commercially available sources by carbon-carbon bond formation *via* remote functionalization. Recently, we have developed a remote functionalization strategy with the utilization of palladium-catalyzed γ - and ϵ -arylations of silyl-dienol and trienol ethers of unblocked enones and π -extended enones.⁴ In this seminar, the development of this unique remote-functionalization strategy shall be discussed along-with the prospects of its application in new synthetic strategies for alkaloid synthesis.



References:

1. Johansson, C. C. C.; Colacot, T. J. *Angew. Chem., Int. Ed.* **2010**, *49*, 676–707.
2. Saini, G.; Kumar, P.; Kumar, G. S.; Arunraj, K. M.; Kapur, M. *Org. Lett.* **2018**, *20*, 441–444.
3. Jiang, H.; Albrecht, L.; Jørgensen, K. A. *Chem. Sci.* **2013**, *4*, 2287–2300.
4. Saini, G.; Mondal, A.; Kapur, M. *Org. Lett.* **2019**, *21*, 0000 (DOI: 10.1021/acs.orglett.9b03462).