

# Ph.D.Open Seminar

Department of Chemistry, IISER Bhopal

Speaker :Vandana Rathore (Thesis Advisor: Prof. Sangit Kumar)

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Thesis title: “Transition-Metal-Free Synthesis of Diaryl Acetamides, Disulfides, and Unsymmetrical OrganochalcogenylIndoles”

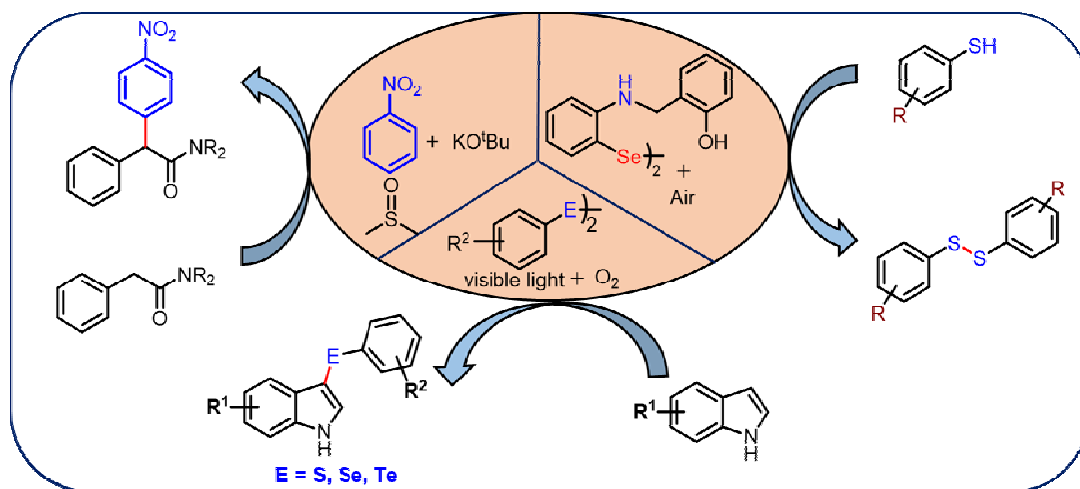
Date: September 4<sup>th</sup>, 2018

Time: 5:00 pm

Venue: AB2 (401)

## Abstract:

Development of carbon-chalcogen(S/Se/Te) and carbon-carbon bond<sup>1</sup> represents a key step for the construction of a broad range of organic molecules, which are prevalent moiety in pharmaceuticals, medicinal chemistry, and biology. Therefore, towards this direction, transition metal(TM)-free and main group chemistry especially, organochalcogen catalytic approaches have attracted attention in recent time, which avoid toxic heavy transition-metal catalysts and makes more environmentally benign process.



My doctoral research work mainly focused on carbon-carbon, carbon-chalcogen, and chalcogen-chalcogen bond formation. In this presentation, at first, I will give a brief introduction of different modes of C–C bond formation and synthetic application of organochalcogen compounds. Then, a mild and simple oxidative cross coupling protocol for the synthesis of unsymmetrical diaryl acetamides and its synthetic applications towards benzofurans, benzophenones, and xanthenes will be presented.<sup>2</sup>The next part of talk will be directed on a novel organoselenium catalyzed aerobic oxidation of organothiols to organodisulfides.<sup>3</sup> Finally in the last section, a mild visible light induced method for direct C(sp<sup>2</sup>)-H functionalization to access 3-chalcogenyl indole will be emphasized.<sup>4</sup>

## Reference:

- 1) Dong, V. M.; et al. *Chem. Rev.***2011**, *111*, 1215.(b) Sun, C. L.; Shi, Z. *J. Chem. Rev.***2014**, *114*, 9219. (c) Beletskaya, I. P.; Ananikov, V. P. *Chem. Rev.***2011**, *111*, 1596.
- 2) Rathore, V.; Sattar, M.; Kumar, R.; Kumar, S. *J. Org. Chem.***2016**, *81*, 9206.
- 3) Rathore, V.; Upadhyay, A.; Kumar, S. *Manuscript submitted*.
- 4) Rathore, V.; Kumar, S. *Manuscript under Preparation*.