

Ph.D. Open Seminar

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Title of Seminar: C-H Bond Functionalization of Ferrocene and Oxindoles: Synthesis of Organochalcogenides and Benzofuro- and Indolo-indoles

Date: 14th March 2018

Time: 3:00 PM

Venue: AB-II-401

Abstract

Functionalized ferrocene have attracted considerable interest in catalysis as ligands, bioactive molecules and other applications.¹ The commonly used methodologies for ferrocene functionalization are Friedel-Crafts type electrophilic reactions and C-H metalation by stoichiometric amount of alkali metals followed by electrophilic substitution reactions.^{1b} The limited substrate scope, high reactivity and handling of alkali metals are the main hurdles for the ferrocene derivatization. Transition metal (TM)-catalyzed directed C-H bond functionalization of ferrocene are highly demanding and reliable strategies due to less waste and easily accessible reaction conditions.² Here, in my thesis work, I will show the directed arylation and alkylation of ferrocene by using aryl, alkyl halides and toluene as a coupling partners.^{3a-b} All chalcogenation such as sulfination, selenation and telluration of ferroceneamide to access mono and di chalcogenated ferroceneamide have been achieved. Further, the sequential chalcogenation of ferroceneamide have achieved with dichalcogenides as a coupling partner using copper salt.^{3c-d} Apart from this, in continuation of TM free conditions, a base mediated cross coupling reaction of oxindole with nitrobenzene and styrene to access important 3-substituted and 3,3-disubstituted oxindoles have been utilized.⁴

References

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