



INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI
SHORT ABSTRACT OF THESIS

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Programme of Study : Ph.D.

Thesis Title: Studies Towards Weak Chelation Assisted Regioselective C-H Activation/C-C Bond Formation: Exploration to Functionalized Heterocycles

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SHORT ABSTRACT

The thesis is divided into four chapters. The first chapter describes the recent advances on transition-metal (TM)-catalyzed weak chelation assisted regioselective C-H functionalization and annulation reactions. The second chapter deals with the weak chelation-guided Rh-catalyzed C4-H alkylation of indoles with cyclopropanols *via* merging C-H/C-C bond activation. The third chapter demonstrates a biorelevant weakly coordinating directing group (DG) assisted arene C-H alkenylation with cyclopropanols. The fourth chapter focuses on weak chelation assisted oxidative C-H/C-H coupling/annulation cascade of aryl/vinyl phosphonic acid monoesters and benzothiophenes to construct benzothieno-fused oxaphosphacycles.