ABSTRACT
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The thesis entitled “Site-selective C-H Functionalization using Directing Group Strategy via C-H Bond Activation” is divided into two sections. Section A, is presented in four chapters, comprising the work on the aromatic ortho-C-H addition to maleimide, mechanistic studies with DFT, ortho-C-H oxidative Heck reaction with maleimides, and ortho-C-H addition to maleimide with a deciduous/traceless directing group. Section B describes a formal oxidative [2+2+2] benzannulation of indoles with alkynes via a directing group strategy.

**Publications:**

1. Ru (II)-Catalyzed C–H Activation: Ketone-Directed Novel 1, 4-Addition of Ortho C–H Bond to Maleimides  
2. A Deciduous Directing Group Approach for the Addition of Aryl and Vinyl nucleophiles to Maleimides  
3. Weak Directing Group Steered Formal [2+2+2]- Oxidative Cycloaddition for Selective Benzannulation of Indoles  