

1. Record Nr.	UNINA9910863189903321
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Titolo	Palladium and Nickel Catalyzed Transformations Forming Functionalized Heterocycles // by Hyung Yoon
Pubbl/distr/stampa	Springer International Publishing, 2020 Cham : , : Springer International Publishing : , : Imprint : Springer, , 2020
ISBN	3-030-54077-4
Edizione	[1st ed. 2020.]
Descrizione fisica	1 online resource (XXIX, 212 p. 552 illus., 35 illus. in color.)
Collana	Springer Theses, Recognizing Outstanding Ph.D. Research, , 2190-5053
Disciplina	541.395
Soggetti	Catalysis Chemistry, Inorganic Chemistry, Organic Organometallic chemistry Chemistry, Physical and theoretical Inorganic Chemistry Organic Chemistry Organometallic Chemistry Physical Chemistry
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Chapter 1. Carbohalogenation Catalyzed by Palladium and Nickel -- Chapter 2. Diastereoselective Pd-Catalyzed Aryl Cyanation and Aryl Borylation -- Chapter 3. Pd-Catalyzed Spirocyclization via C–H Activation and Benzyne/Alkyne Insertion.
Sommario/riassunto	This book presents Pd- and Ni-catalyzed transformations generating functionalized heterocycles. Transition metal catalysis is at the forefront of synthetic organic chemistry since it offers new and powerful methods to forge carbon–carbon bonds in high atom- and step-economy. In Chapter 1, the author describes a Pd- and Ni-catalyzed cycloisomerization of aryl iodides to alkyl iodides, known as carboiodination. In the context of the Pd-catalyzed variant, the chapter explores the production of enantioenriched carboxamides through

diastereoselective Pd-catalyzed carboiodination. It then discusses Ni-catalyzed reactions to generate oxindoles and an enantioselective variant employing a dual ligand system. Chapter 2 introduces readers to a Pd-catalyzed diastereoselective anion-capture cascade. It also examines diastereoselective Pd-catalyzed aryl cyanation to synthesize alkyl nitriles, a method that generates high yields of borylated chromans as a single diastereomer, and highlights its synthetic utility. Lastly, Chapter 3 presents a Pd-catalyzed domino process harnessing carbopalladation, C–H activation and  $\alpha$ -system insertion (benzynes and alkynes) to generate spirocycles. It also describes the mechanistic studies performed on these reactions.

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