

Innovative Approaches to Mechanochemical Organic Synthesis: Our Recent Research

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Bio: Hajime received his BSc and Ph.D. from Kyoto University, and then became Assistant Professor at Tsukuba University, and in 2002 became Associate Professor in Hokkaido University, where he is still based as a Professor, supervising a group of >20 students. Hajime has won several awards over his career to date including the SSOCJ Fujifilm Functional Materials Science Award in 2017.

Abstract: Mechanochemical organic synthesis uses a ball mill instead of the conventional glass vessel with solvent to carry out the reaction. This method has significant advantages, such as greatly reducing the reaction solvent, accelerating the reaction, and allowing the use of insoluble substrates. In this talk, I will discuss cross-coupling reactions under mechanochemical conditions, organometallic chemistry, mechanoredox catalysis with piezoelectric materials, and radical reactions by cleavage of polymers. If time permits, our silicon and boron chemistry will also be presented.