第484回触媒科学研究所コロキウム

窒素分子の活性化とその有機合成的応用

Dinitrogen N2 Activation and Transformation to N–C Bonds

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2025年6月20日(金)　15:00–16:00

創成科学研究棟　創成科学研究棟　4階　セミナー室B・C

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Nowadays almost all artificial synthetic nitrogen-containing organic compounds (N–C bonding) are prepared via ammonia (NH3, the Haber–Bosch product). The ultimate research goal of our group is to synthesize nitrogen-containing organic compounds efficiently and directly from N2 gas as the nitrogen source, bypassing the NH3-depended synthetic pathway, mainly via metal-mediated or catalyzed dinitrogen functionalization. At this presentation, I will briefly introduce two results recently realized in my research group. One result is about the method and mechanism on efficient first-step and second-step N2 electrophilic functionalization of LnCr–N2 metal dinitrogen complexes. The other result is on the synthesis of nitrogen-containing organic compounds via LiNCNLi from N2 gas and carbon by synergizing the heterogeneous synthetic approach with the homogeneous synthetic methodology.

Education and Research Experience

BSc Chemistry from Xiamen University, China in 1983.
MSc in Coordination Chemistry from Nanjing University, Zhengzhou University, and the Henan Institute of Chemistry, China in 1989.
PhD Functional Molecule Chemistry from the Institute for Molecular Sciences (IMS), Okazaki, Japan in 1996.
Postdoc at Catalysis Research Center (CRC), Hokkaido University, Japan in 1996.
Assistant Professor at Hokkaido University, Japan in 1997.
Associate Professor of Chemistry at Peking University, China 1998.
Full Professor of Chemistry at Peking University, China since 1999.

Honors and Awards

- Member of the Chinese Academy of Sciences (2015).
- Yaozeng Huang Organometallic Chemistry Award (2004).
- CCS-AkzoNobel Chemical Sciences Award (2014).
- Associate Editor of Organic Letters (2013–2023).
- Associate Editor of Applied Organometallic Chemistry (2005–2013).
- Chemistry Section Editor of National Science Review (2018–).
- Member of the advisory board of Accounts of Chemical Research (2015–2020).
- Member of the advisory board of Chem. Lett. and BCSJ.

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484th Institute for Catalysis (ICAT) Colloquium