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SEMINARIO

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*Asymmetric Direct Transformations of
Aromatic Compounds*

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Asymmetric Direct Transformations of Aromatic Compounds

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In this talk, the progress from the You laboratory on the development of asymmetric direct C-H functionalization of aromatic compounds and catalytic asymmetric dearomatization processes will be introduced.

Transition-metal-catalyzed asymmetric C–H bond functionalization reactions have attracted much attention over the past few years. In addition to the majority of the work focusing on the installation of central chirality, asymmetric C-H functionalization reactions for the construction of planar chirality, axial chirality and helical chirality have been carried out.

Asymmetric dearomatization reactions are particularly attractive methods in organic synthesis given the facts that the starting materials arenes are highly abundant and readily available, and the dearomatization reaction would provide direct access to polycycles and spirocycles bearing quaternary stereogenic center. However, due to the extra stability of “aromaticity” of the arenes, their dearomatization reaction with good enantioselective control has been a challenge. The You group has developed a series of asymmetric dearomatization reactions of various aromatic compounds.

References

1. You, S.-L. Asymmetric Functionalization of C–H Bonds. RSC: **2015**.
2. You, S.-L. Asymmetric Dearomatization Reactions. Wiley-VCH: **2016**.
3. Zhuo, C.-X.; Zheng, C.; You, S.-L. Transition-metal-catalyzed Asymmetric Allylic Dearomatization Reactions *Acc. Chem. Res.* **2014**, *47*, 2558-2573.
4. Gao, D.-W.; Gu, Q.; Zheng, C.; You, S.-L. Synthesis of Planar Chiral Ferrocenes via Transition-Metal-Catalyzed Direct C–H Bond Functionalization *Acc. Chem. Res.* **2017**, *50*, 351-365.
5. Zheng, C.; You, S.-L. Exploring the Chemistry of Spiroindolenines by Mechanistically-Driven Reaction Development: Asymmetric Pictet–Spengler-type Reactions and Beyond. *Acc. Chem. Res.* **2020**, *53*, 974-987.
6. Zhu, M.; Zhang, X.; Zheng, C.; You, S.-L. Energy Transfer Enabled Dearomative Cycloaddition Reactions of Indoles/Pyrroles via Excited-State Aromatics. *Acc. Chem. Res.* **2022**, *55*, 2510-2525.