



香港中文大學化學系
Department of Chemistry
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Department of Chemistry Research Seminar Series



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Metal Difluorocarbene- Involved Catalytic Coupling

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Metal Difluorocarbene-Involved Catalytic Coupling

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Difluorocarbene is a singlet electrophilic carbene. Owing to its ability to form two chemical bonds to its carbon center, difluorocarbene greatly expands the chemical space for constructing novel fluorinated structures, which are crucial for modern drug discovery and advanced materials. However, the high reactivity of difluorocarbene severely limits its widespread synthetic applications, resulting in a very limited range of reaction types. Modulating the reactivity of difluorocarbene using metals is a promising strategy to overcome this limitation. Nevertheless, the use of metal difluorocarbene complexes in catalytic synthesis has remained a long-standing challenge, primarily due to the lack of catalytic reactivity of isolated metal difluorocarbene complexes. This presentation will reveal the discovery of a metal difluorocarbene-involved catalytic coupling (MeDIC) reaction. Detailed mechanistic studies have enabled a deep understanding of metal difluorocarbene chemistry and have facilitated the development of new methodologies for synthesizing organofluorine compounds of medicinal interest.