
화학과 대학원 세미나

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Radical-Polar Crossover Strategy in Organic Electrochemistry

Due to the unique reactivity of open-shell intermediates, the development of catalytic transformations driven by single-electron transfer (SET) has been an area of intense research in organic chemistry. In particular, the employment of unconventional means of activation, including photoredox catalysis and electrocatalysis, has provided unique entry to single-electron reactivities and led to new solutions to challenging synthetic problems that are not readily addressed using existing tools. In the first part of the lecture, an electrochemically driven radical-polar crossover strategy for the stereo- or regioselective alkene functionalization reactions. Compared to the precedent examples, the newly developed system obviates the need for transition metal catalysts or external oxidizing agents, thus providing an operationally simple and efficient route to an array of synthetically valuable organic products. In the second part of the lecture, a key distinction of photoredox catalysis and electroreductively triggered approach will be discussed as well as mechanistic hypotheses that underpin a development of mechanistically distinct and generally valid hydrodifluoromethylation reaction

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