グローバルCOE「統合物質科学」セミナー

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“Development of Group 4 Metal Mediated Synthesis of Amino Acids from Carbon Dioxide”

Abstract: One of the greatest challenges confronting the scientific community is recycling CO_2. While efforts are underway to implement permanent storage of captured CO_2 through geologic sequestration, there is also an opportunity to utilize CO_2 as an inexpensive raw material and convert it to a beneficial use that have a high impact on chemical society. Although the utilization of CO_2 promoted by organometallic complexes has experienced significant progress in recent times, it still represents a growing and promising area of research in synthetic organic chemistry. We are currently working on synthesis of amino acids from CO_2 with transition metals. The synthesis of novel artificial amino acids remains a subject of considerable interest. Unnatural amino acids provide us with some of the most powerful molecular tools for biology and medicine known today. Because the method is ideal for the preparation of amino acids with tremendous structural diversity, it will expand the synthetic methodologies available to not only organic chemists, but biochemists will also benefit from the accessibility of the amino acid libraries.

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