

第 724 回 化学・物質工学セミナー

Induction, Control and Rationalization of Supramolecular Chirogenesis using Metalloporphyrin Tweezers: A Structure-Function Correlation

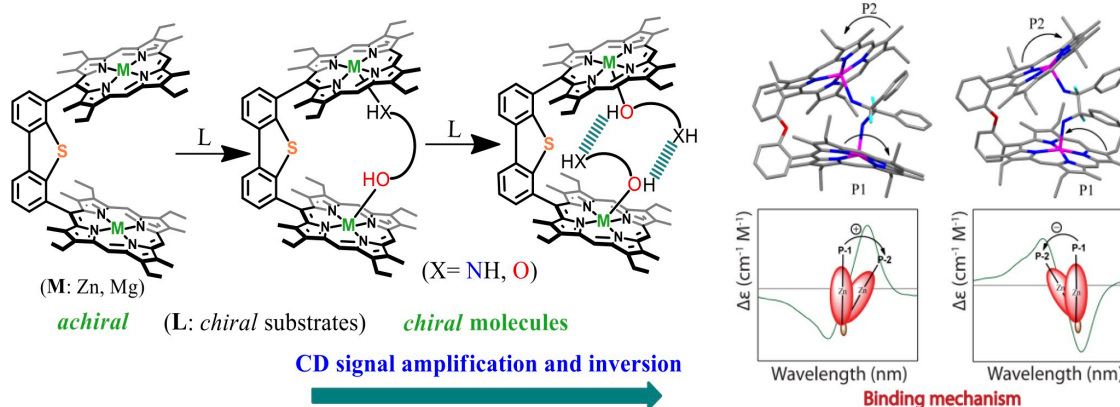
Prof. S. P. Rath

Department of Chemistry, Indian Institute of Technology Kanpur
Kanpur-208016. INDIA (Email: sprath@iitk.ac.in)

記

日時：令和 4 年 5 月 23 日（月） 14:30~16:00 まで
場所：多目的ホール（総合教育研究棟 2F）

Supramolecular chirogenesis is one of the most important interdisciplinary fields to be looked into because of its occurrences in many natural and artificial systems. The fundamental reason of the transfer of chirality depends upon the mechanism of the molecular recognition during the complexation process, and a complete understanding of the origin of chirality transfer information at the electronic and molecular levels would help us to determine absolute configuration of natural products and synthetic compounds. Therefore, understanding of the various influencing factors is extremely important for controlling chirality induction phenomena. A series of supramolecular chiral 1:1 sandwich complexes consisting of metallo-bisporphyrin host and chiral diamine guest have been synthesized. Experimental and DFT calculations have demonstrated the possible interconversion between clockwise (steric-controlled) and anticlockwise (chirality-controlled) twisted conformers just upon changing the bulk of the substituent irrespective of the nature of chirality at the stereogenic centre.¹⁻³



- (a) D. Chandel, B. Saha, C. Pal, S. P. Rath *Inorg. Chem.* 2022, 62, 0000. (b) B. Saha, D. Chandel, S. P. Rath *Inorg. Chem.* 2022, 62, 2154. (c) A. Dhamija, B. Saha, D. Chandel, H. Malik S. P. Rath *Inorg. Chem.* 2020, 59, 801. (d) A. Dhamija, B. Saha, S. P. Rath *Inorg. Chem.* 2017, 56, 15203. (e) S. A. Iqbal, A. Dhamija, S. Brahma, S. P. Rath *J. Org. Chem.* 2016, 81, 5440. (f) A. Dhamija, S. A. Iqbal, S. P. Rath *Inorg. Chem.* 2016, 55, 13014. (g) S. Brahma, S. A. Iqbal, S. P. Rath *Inorg. Chem.* 2014, 53, 2381. (h) S. Brahma, S. A. Iqbal, S. P. Rath *Inorg. Chem.* 2014, 53, 49.
- (a) B. Saha, S. A. Iqbal, S. P. Rath *Inorg. Chem.* 2020, 59, 7795. (b) B. Saha, A. G. Petrovic, A. Dhamija, N. Berova, S. P. Rath *Inorg. Chem.* 2019, 58, 11420. (c) B. Saha, S. A. Iqbal, A. Petrovic, N. Berova, S. P. Rath *Inorg. Chem.* 2017, 56, 3849. (d) S. A. Iqbal, A. Dhamija, S. P. Rath *Chem. Commun.* 2015, 51, 14107. (e) S. A. Iqbal, S. Brahma, S. P. Rath *Chem. Commun.* 2015, 51, 895. (f) S. A. Iqbal, S. Brahma, S. P. Rath *Chem. Commun.* 2014, 50, 14037. (g) S. Brahma, S. A. Iqbal, S. P. Rath *Chem. Commun.* 2012, 48, 4070.
- (a) A. Dhamija, P. Mondal, B. Saha, S. P. Rath *Dalton Trans.* 2020, 49, 10679. (b) P. Mondal, S. P. Rath, *Coord. Chem. Rev.* 2020, 405, 213117.

第 724 回セミナー世話人
工学研究科物質科学部門 馬越啓介
(内線 2672)