

第 758 回 化学・物質工学セミナー

全南大学の Jacopo Tessarolo 博士が、長崎大学に来学されることになりました。そこで下記のとおりセミナーを開催致します。万障お繰り合わせの上、ご参加下さい。

Implementing Functionalities in Discrete Coordination-Driven Supramolecules

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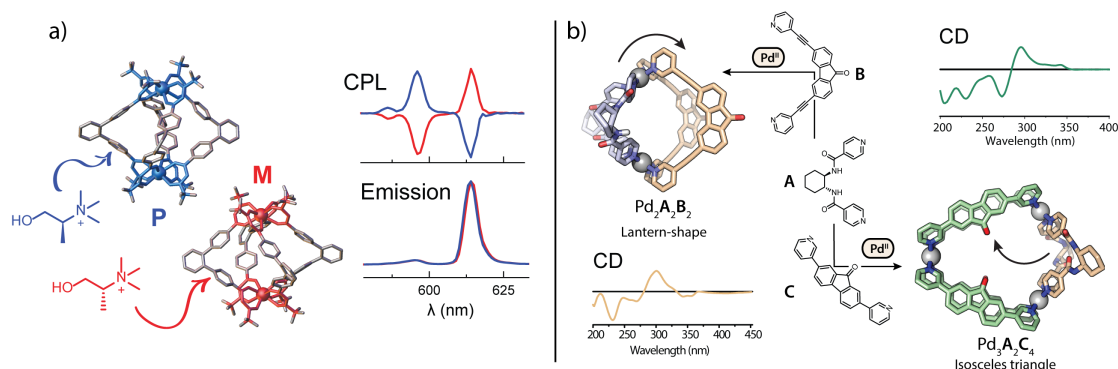
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日時：令和 8 年 3 月 23 日（月） 16：00～17：30

場所：工学部 5 番講義室（工学部 1 号館 2F）

Metal-mediated self-assembly of supramolecular architectures is an efficient tool for developing new materials with well-defined shapes and geometries, depending on proper ligand design and the choice of metal centers.^{1a} Particularly, it is possible to assemble nanosized entities with molecular pockets able to host specific guest molecules and modulate the guest reactivity.^{1b} Besides these structural features, functions deriving from the metal center, such as lanthanide emission,^{2a} or from the organic ligand, for instance chromophores or photoswitches^{2b,c}, can be implemented. Herein we exploit the cavity presence to study guest binding and reactivity in either β -diketone or pyridine-based systems. Next, we combine chirality and optical properties from different building blocks, achieving chiroptical properties such as circular dichroism (CD) and circular polarized luminescence (CPL) in supramolecular assemblies via guest-to-host² (Figure 1a) or ligand-to-ligand chirality transfer³ (Figure 1b). The latter example is based on the combination of multiple ligands following non-statistical processes to yield low symmetric heteroleptic assemblies.

Figure 1. a) guest-to-host chirality transfer in Ln(III)-helicates and b) ligand-to-ligand chirality transfer in Pd(II)-heteroleptic cages.



1. a) J. Tessarolo, G.H. Clever *et al. Chem. Sci.*, **2021**, *12*, 7269; b) J. Tessarolo, M. Rancan *et al. Chem. Comm.* **2014**, *50*, 13761.
2. a) J. Tessarolo, M. Rancan *et al. Cell Reports Physical Science*, **2022**, *3*, 1006923; b) J. Tessarolo, G.H. Clever *et al. J. Am Chem. Soc.*, **2022**, *144*, 3099; c) E. Benchimol, J. Tessarolo and G.H. Clever, *Nat. Chem.* **2024**, *16*, 13–21.
3. a) J. Tessarolo, K. Wu, G.H. Clever *et al. Angew. Chem. Int. Ed.*, **2022**, *61*, e202205725; b) J. Tessarolo, G.H. Clever *et al. Chem. Comm.* **2023**, *59*, 3467; c) J. Tessarolo, G.H. Clever *et al. Chem.*, **2026**, *12*, 102780.

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