

第692回 化学・物質工学セミナー開催のお知らせ

この化学・物質工学セミナーは、平成30年度第1回5年一貫制博士課程グリーンシステム創成科学専攻の国際セミナーと共催します。万障お繰り合わせの上、ご参加下さい。

日時：平成30年5月14日（月）14:30～16:00

場所：総合教育研究棟 多目的ホール

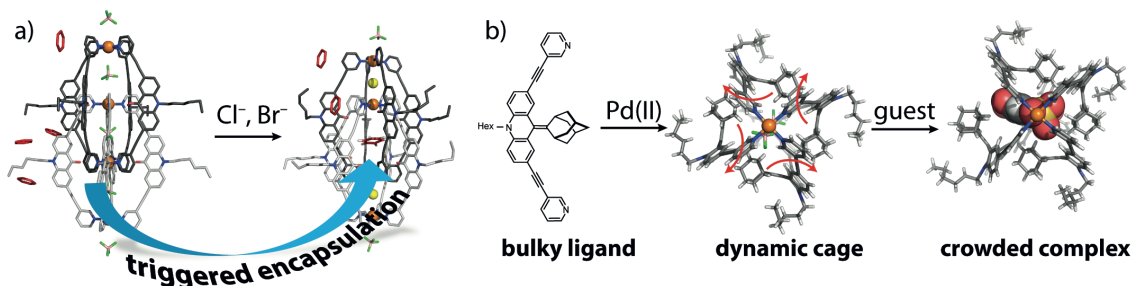
講演題目；Host-Guest Chemistry of Acridone-based Coordination Cages

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Supramolecular coordination cages, assembled from organic ligands and metal cations, are of broad interest due to their versatile topologies, a rich host-guest chemistry and unique properties.¹ This presentation focusses on the formation and investigation of the diverse host-guest chemistry of coordination cages assembled from acridone-based banana-shaped ligands and palladium(II) cations.

The interpenetrated coordination cage [Pd₄L₈] is activated, by addition of halide anions, to encapsulate a series of cyclic, neutral guest molecules (see Figure a). The uptake kinetics and thermodynamic stability depends strongly on the size, shape and the chemical nature of the neutral guests.^{1,2} In addition, the interpenetrated coordination cage was found to photoactivate triplet oxygen into singlet oxygen and catalyze a hetero-Diels-Alder reaction with 1,3-cyclohexadiene.

Furthermore, introduction of a bulky adamantyl group to this acridone ligand backbone prevents dimerization and results in the clean formation of a monomeric cage [Pd₂L₄], which is able to encapsulate various anionic-guest molecules. The ligand shows an flipping motion in the free ligand and astonishingly in the cage (see Figure b).³



[1] M. Han, D. M. Engelhard, G. H. Clever, *Chem. Soc. Rev.*, **2013**, *43*, 1848.

[2] a) S. Löffler, J. Lübben, L. Krause, D. Stalke, B. Dittrich, G. H. Clever *J. Am. Chem. Soc.* **2015**, 1060–1064, b) S. Löffler, A. Wuttke, B. Zhang, J. J. Holstein, R. A. Mata, G. H. Clever, *ChemComm.* **2017**, *53*, 11933.

[3] S. Löffler, J. Lübben, L. Krause, D. Stalke, B. Dittrich, G. H. Clever, *J. Am. Chem. Soc.* **2015**, *137*, 1060.

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