HOKKAIDO UNIVERSITY

AMBITIOUS LEADER'S PROGRAM

Fostering Future Leaders to Open New Frontiers in Materials Science

Ambitious 物質科学セミナー

Engineering luminescent supramolecular architectures: lights, camera, action!

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平成 29 年 11 月 9 日（木）16:30~18:00

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Nowadays, the possibility to precisely control functional architectures with long-range order at the nano- and micro-meter scale is a challenging research topic. In this respect, self-assembly through weak non-covalent interactions has been shown to provide a way to organize molecules in supramolecular structures with properties superior to common bulk materials. In the first part of the talk, luminescent dinuclear Re(I) complexes that are able to self-assemble in aqueous environment into soft nanostructures will be presented. In the second part, a class of platinum(II) complexes featuring metallophilic interactions will be discussed. Such molecules are able to self-assemble into highly luminescent supramolecular fibers that show linearly-polarized light excitation and emission from an excited state with triplet metal-metal-to-ligand charge transfer (^{3}MMLCT) character. On the other hand, when such class of platinum complexes are decorated with chiral pendants, the corresponding self-assembled structures display interesting chirality transfer features with opposite helicity. Furthermore, their self-assembly ability has been employed for unraveling evolution of complex biomimetic assembly processes *in* and *out* of the thermodynamic equilibrium in real-time. Finally, taking advantage of the presence of the ground-state ^{1}MMLCT band their application as long lived and highly emissive bio-imaging labels *in vitro* that can be easily excited in the visible region will be demonstrated.

新学術領域研究
ソフトクリスタル
高秩序で柔軟な応答系の学理と光機能

本講演は、大学院総合化学院『化学研究先端講義／総合化学特別研究第二』の一部として認定されています。

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