

位置選択的配位により構造制御された亜鉛ポルフィリン 超分子集合体の局所構造ならびに光物性の制御

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Control of local structures and photophysical properties of zinc porphyrin-based supramolecular assemblies structurally organized by regioselective ligand coordination

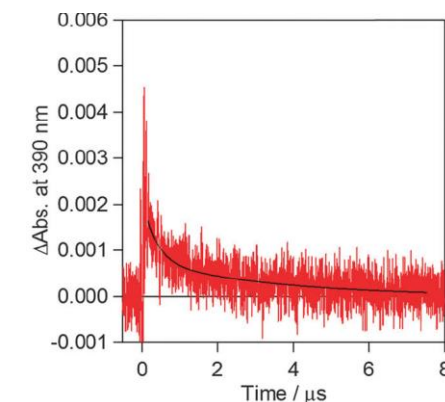
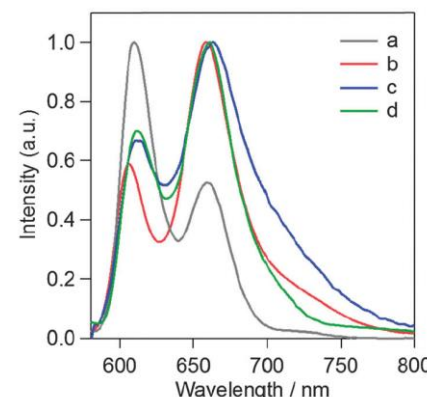
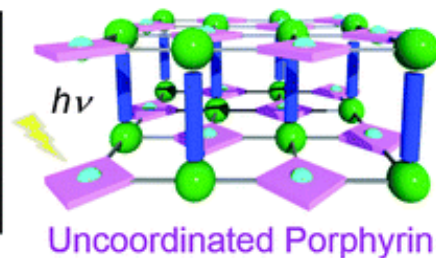
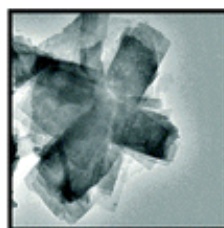
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Porphyrin-Paddlewheel 3D Frameworks

Colloidal MOFs
Method



/ DABCO



窒素含有配位子の位置選択的配位を駆動力とした亜鉛ポルフィリン系超分子集合体合成に取り組み、DABCOを用いた系において配位様式より、吸収スペクトルならびに光励起状態の動的挙動の制御に成功した。さらに光誘起電子移動に基づく消光過程の実証に成功した。これらの結果より、本分子系は他の分子系に比較して、包接挙動や配位状態制御により、容易にその局所構造ならびに励起状態挙動の制御が達成できることを世界に先駆けて見出した。

Nano-sized molecular assemblies of zinc porphyrins (ZnTCPP)] utilizing bridging nitrogen ligands were prepared to demonstrate the regioselective coordination by two different synthetic strategies. Then, DABCO moieties are decorated on zinc atoms in the metal centres of the porphyrin rings. Concretely, the metal centres of zinc porphyrins were unsaturated and uncoordinated with the DABCO ligands. These different coordination features have great effect on the spectroscopic and photophysical properties. Finally, fluorescence quenching experiments *via* PET utilizing an electron acceptor were performed. The results are suggested that the unsaturated ZnTCPP units embedded in *n*-uPDC easily accommodate guest molecules as compared to the other systems.