第238回触媒化学研究センター談話会

演　題: METAL-ORGANIC HYBRID MATERIALS FOR CATALYTIC AND BIOMEDICAL APPLICATIONS

講演者： Professor Wenbin LIN

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日　時： ２００８年　７月２４日（木）
１５：００−１６：３０

会　場： 北海道大学創成科学研究棟
４階 セミナー室B ０４-２１４号室

要　旨：

The chemistry of hybrid solids has received much recent attention owing to the propensity of incorporating and fine-tuning desired properties via judicious choices of the building blocks. The Lin group has developed functional organic-inorganic hybrid materials for catalytic and biomedical applications over the past few years. In this lecture, I would like to first discuss design and synthesis of chiral porous metal-organic frameworks by connecting metal nodes with chiral bridging ligands that have orthogonal functionalities. These chiral porous solids have been used to catalyze highly enantioselective organic transformations. I will also talk about our recent efforts on exploring the applications of hybrid nanomaterials in multimodal biomedical imaging and cancer therapy. Magnetic resonance imaging (MRI) and optical imaging (OI) techniques require efficient contrast enhancement agents that can be selectively and specifically delivered to the diseased cells in vivo. We have synthesized a range of hybrid nanomaterials that are highly luminescent with tunable emission wavelength and exhibit extraordinarily large relaxivities for magnetic resonance imaging. Preliminary results of in vitro cell labeling and in vivo optical and MR imaging of cancer and rheumatoid arthritis in mouse models will be presented, along with the latest efforts in designing hybrid nanomaterials for cancer therapy.

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