Visiting Professors

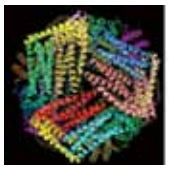
Visiting Professor
NISHIHARA, Hiroshi *(from The University of Tokyo)*

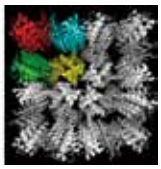
Coordination Programming of Electro- and Photo-Functional Materials

One of the goals of molecular electronics is to control electron conduction in molecular wires and networks by combining appropriate molecular units. We are investigating the construction of hetero metal complex oligomer wires by an interfacial stepwise coordination method using various combinations of surface materials, ligands and metals in order to clarify all the factors to decide the electron conduction behaviors. The surface coordination programming is being applied for development of bio-photosensors and also new types of electro- and photo-functional molecular systems based on photochromism, strong donor–acceptor interaction, π-conjugation, and molecular rotation.

Visiting Associate Professor
UENO, Takafumi *(from Kyoto University)*

Novel Functional Nano Bio-Materials Based on Protein Assemly





Our research interests focus on the understanding, utilization, and design of protein assemblies that promote chemical reactions. We are developing strategies to functionalize natural protein assemblies as well as prepare artificial protein assemblies. This will expand the possibilities of our research into several emerging fields by bringing together the fields of organic chemistry, inorganic chemistry, biochemistry, molecular biology and structural biology.

Visiting Associate Professor
OYAMA, Dai *(from Fukushima University)*

Development of Highly Functionalized Transition Metal Complexes Based on Non-Innocent Ligands

Redox reactions are one of the most fundamental chemical reactions. Nature often utilizes redox-active organics in chemical transformations. Therefore, significant attention is currently focused on ligand-centered redox reactions in transition metal complexes.

We have investigated the synthesis and properties of the ruthenium complexes containing both pyridyl binding sites and azo, naphthyridine or quinone moieties which are closely related to biologically important molecules. In particular, we have studied on some important reaction systems such as multi-electron CO_2 reductions and H_2 evolution, based on proton-coupled electron transfer (PCET).