ISHII LAB.

[Development of Functional Molecules]

Department of Materials and Environmental Science

Functional Metal Complexes Chemistry

Department of Applied Chemistry

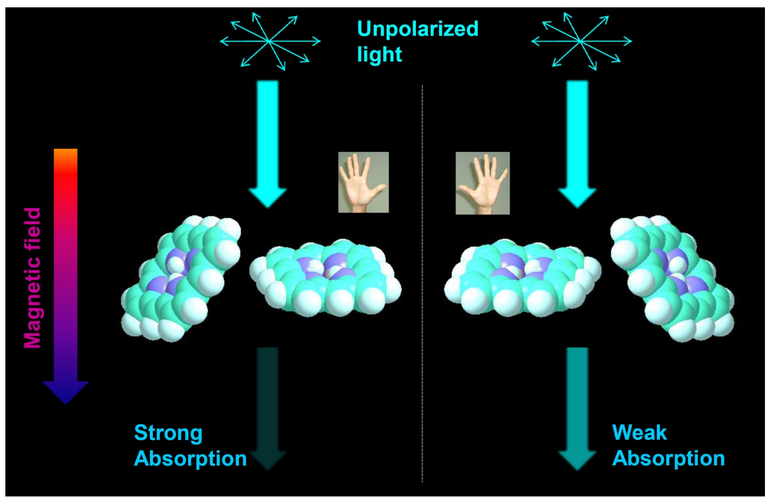
https://www.k-ishiilab.iis.u-tokyo.ac.jp

Functionalization of Molecules

The discovery and elucidation of new electronic structures are important not only for pioneering frontier science but also for developing new functions. Since metal complexes have various electronic structures, coordination chemistry is promising for designing electronic properties. We aim to create novel functions of organic-inorganic hybrid compounds in terms of coordination chemistry, photochemistry, and spin chemistry.

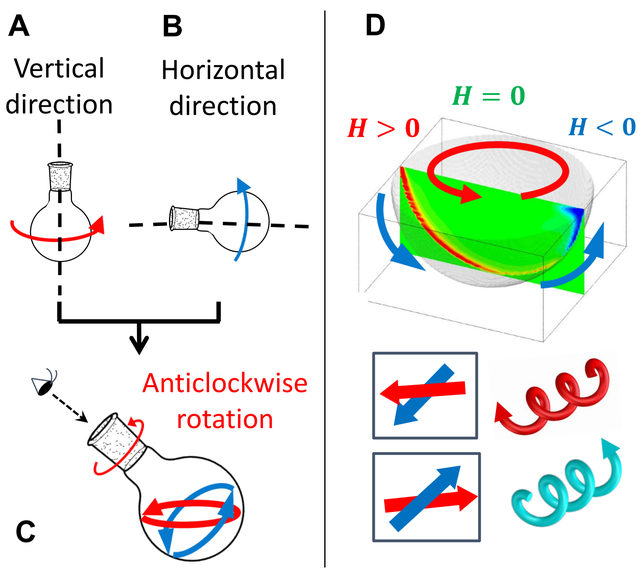
Chemistry of Photofunctional Molecules

Homochirality of Life : A Magnetic Answer



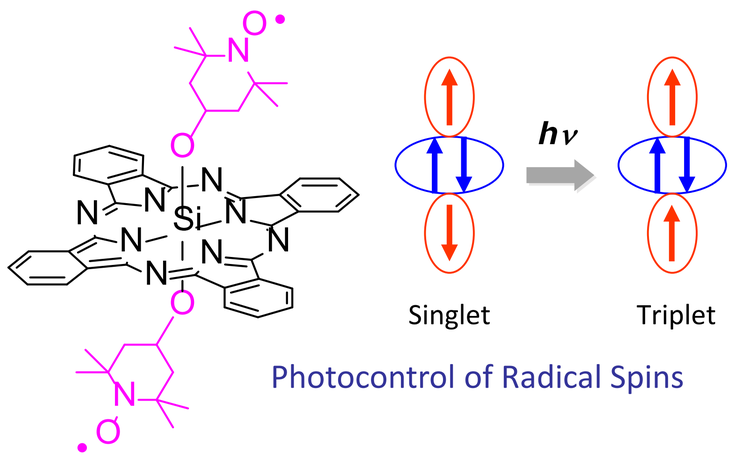
Magneto-Chiral Dichroism of Organic Compounds

Mechanical Control of Chirality

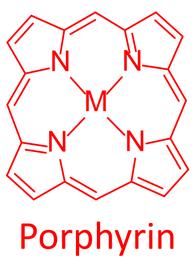


Preparation of Chiral-Aggregates Using a Rotary Evaporator

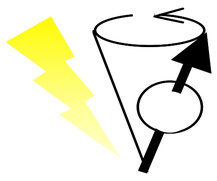
Photocontrol of Magnetic Properties

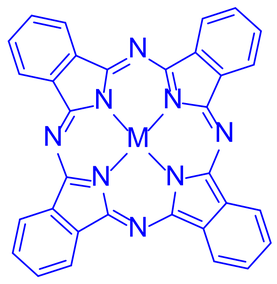


Photocontrol of Radical Spins

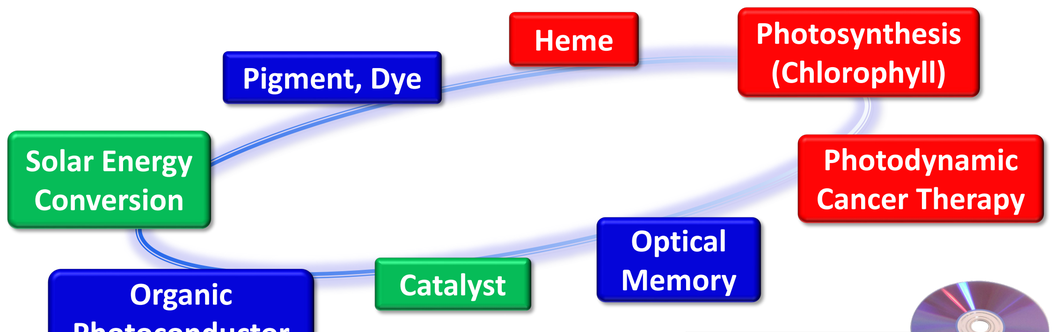


Porphyrin

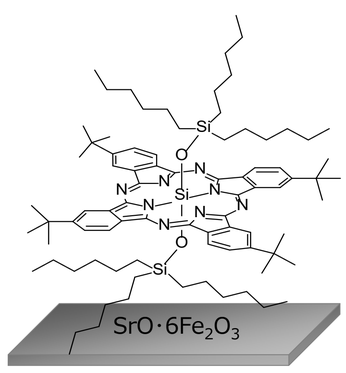


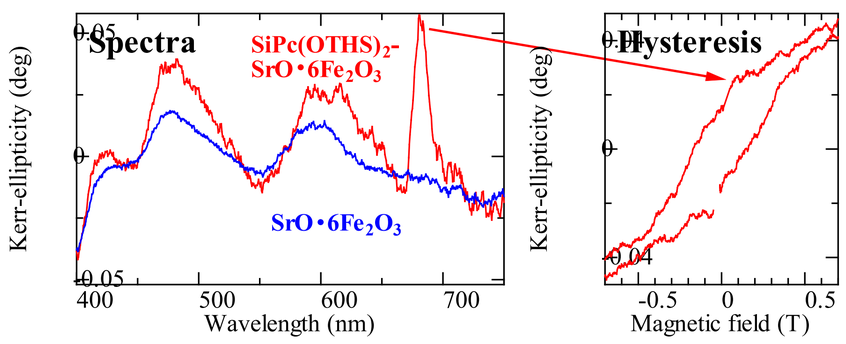


Phthalocyanine



Molecular Magneto-Optical Materials

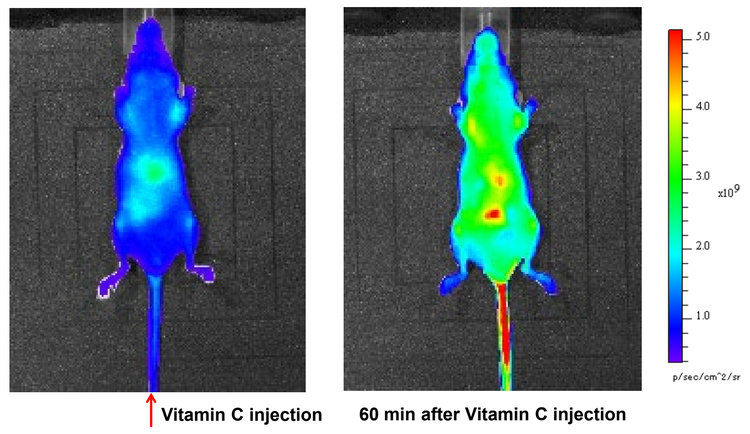




Molecular Magnetic Hysteresis at Room Temperature

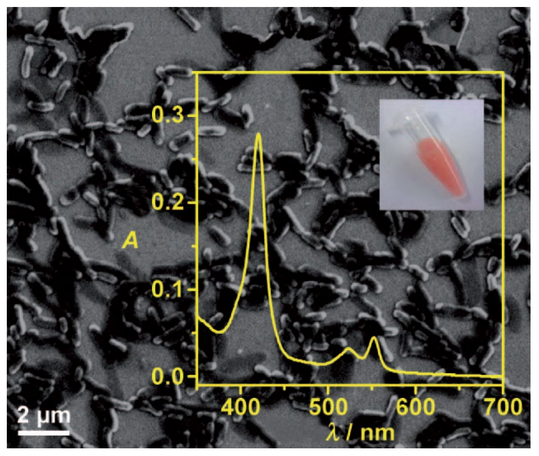
Chemistry of Biofunctional Molecules

Fluorescence Probes



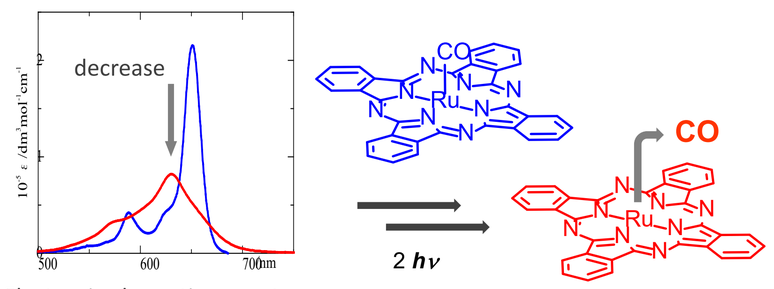
Fluorescence Bioimaging of Vitamin C in a Mouse

Spectroscopic Molecular Detections in Bacteria

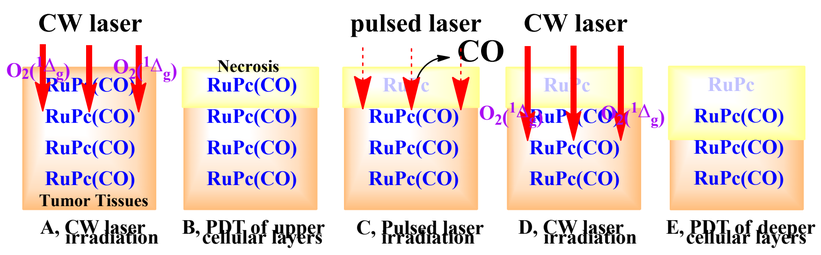


Spectroscopic Observations of Cytochrome *c* in Bacteria

Photodynamic Cancer Therapy (PDT)



Electronic absorption spectrum



PDT of Deeper Tumor Tissues