

June 14-15, 2018
London, UKTakashiro Akitsu, Arch Chem Res 2018, Volume 2
DOI: 10.21767/2572-4657-C2-005

TOPOLOGICAL LIGHT FUNCTIONAL HYBRID MATERIALS OF CHIRAL SCHIFF BASE METAL COMPLEXES

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In our laboratory, we are mainly studying on Schiff base metal complexes which are composed of various metal ions and organic ligand components. They are designed and synthesized skillfully, and are elucidating structures and electronic properties by using various methods such as X-ray crystallography, (spectroscopic) measurements of physical properties and theoretical calculations. Basic research works of an investigation of knowledge about principle of structures and electronic state (physical inorganic chemistry) and are our core competence. Interpretation of electronic absorption and circular dichroism (ABCD) spectra and determination of absolute structure of optically active complexes by X-ray crystallography are historically important issues in the field of coordination chemistry especially in Japan. Recently, as the application of such fundamentals, we are dealing with hybrid functional materials of supramolecular complexes exhibiting multiple physical properties aiming at environmental or energy materials such as DSSC, light-driven biofuel cells, and photocatalysts. Our research concept of "hybrid systems of chiral metal complexes" were proposed by combination of chiral metal complexes having sufficient accumulation

and new functional nano-materials (metal complexes, magnetic materials, semiconductors, metallic nanoparticles, catalysts, optical function pigments, synthetic polymers and metalloproteins, etc.). As for physical measurements, we are using "topological lights" such as linearly and circular polarized light, optical vortex, and free electron laser for both optical illumination and spectral interpretation of these inorganic hybrid materials. In this plenary lecture, I will present both our concept (including a wide element of an inorganic chemistry from solid state chemistry to bioinorganic chemistry) and some of our recent results

Biography

Takashiro Akitsu has completed his PhD at the age of 28 years from Department of Chemistry, Osaka University and postdoctoral studies from Institute for Protein Research, Osaka University. He is a professor of Department of Chemistry, Faculty of Science, Tokyo University of Science, now. He has published more than 140 papers in reputed journals and has been serving as an editorial board member.

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