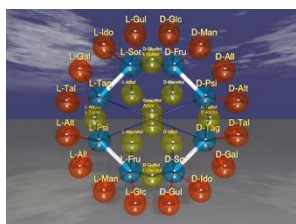


# Electronic Coordination Chemistry

Prof. Dr. Tomohiko ISHII (*Program in Advanced Materials Science*)

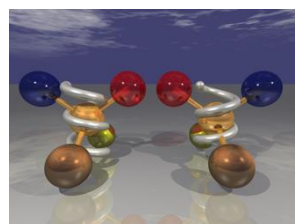
ishii.tomohiko@kagawa-u.ac.jp



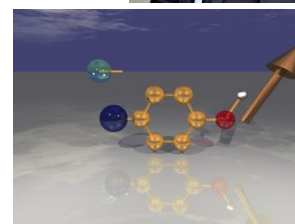
Izumoring



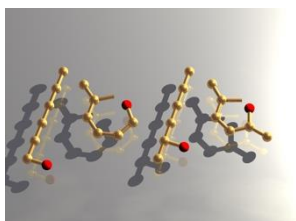
D- and L-Rare Sugars



Optical Rotatory



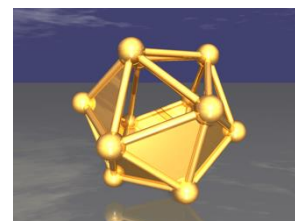
Acid Dissociation  $pK_a$



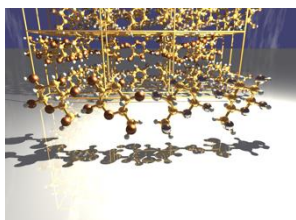
Cyclization



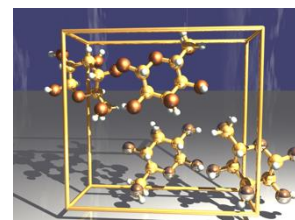
Member of Molecular Design Coordinators



SuperAtom



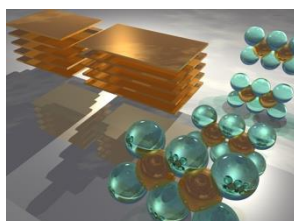
Superlattice RS



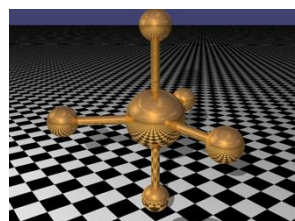
Supramolecular RS



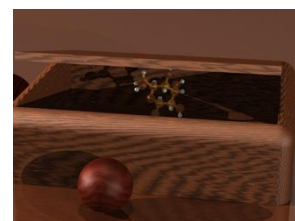
Cerium Oxide



GICs



Berry Pseudo Rotation



$\beta$ -D- Psicose

## Directly Observation and High Accuracy Calculation for the Electron.

We are investigating the physical properties of organic and inorganic materials by means of the study of the electronic systems of metal complexes and rare sugars. Metal complexes are important materials that express a variety of functions in the body of living organisms. By studying in detail the structure of the metal complexes and the mechanism of their physical properties, and by imitating their structure and electronic state, we can design a novel functional materials that are useful for human life. Both **experimental** and **theoretical** approaches are required for the chemistry. As an “**Electronic Coordination Chemistry**”, we investigate a molecular orbital calculation called the **DV- $X\alpha$  method** in order to study the electronic distribution of the materials in 3D space. Our goal is to be a molecular design coordinator.

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