Department of Materials Science, Graduate School of Engineering
Center for Research & Innovation in Electronic Functional Materials
Osaka Metropolitan University

Materials Science Colloquia 2022-23

Coordination nanosheets — Functional 2D material consisting of metal complexes

NISHIHARA Hiroshi

Professor, Tokyo University of Science

Thursday, 23 June 2022, 16:45-17:45 (online)*

Abstract

The coordination nanosheet (CONASH) refers to a ultra-thin film of a two-dimensional (2D) conjugated polymer composed of metal ions and planar bridging organic π-ligands. Contrarily to inorganic nanosheets such as graphene and transition metal dichalcogenide (TMDC), CONASH can be synthesized at the liquid-liquid and gas-liquid interface. There are numerous combinations of metals and ligands, such that various chemical structures can be obtained. Also, most coordination reactions proceed under ambient conditions, such that easy and cheap bottom-up synthetic method can be employed. In this lecture, synthesis and structures of several examples of coordination nanosheets and their physical and chemical functions such as electrical conductivity, redox activity, electrocatalytic properties, energy storage capacities, electrochromic properties, photo-electron conversion abilities will be reported.

---

* Coordinator: Dr Rie Makiura, Dept of Materials Science (rie.makiura@omu.ac.jp)