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Research keywords: electrical conduction, dielectric property, chromism, hydrogen bond,

Molecular solid and molecule for materials science

Solids state properties of the molecular solids are main focus of the research project. Dynamic behaviors of varieties of molecule (polyoxometalate, organic, inorganic, coordination compound) and electrons under the electric field are interested, that includes

- Electrical conduction; organic semiconductor, charge transfer complex
- Ionic conduction; electrophoretic migration, solid-state electrolyte
- Dielectric property; ferroelectrics, pyroelectrics, dipole relaxation, charge polarization.

In addition, controlling and understanding of sophisticated intermolecular interaction system is another interest that includes,

- Rational synthesis of polyoxometalates,
- Molecular assembly nanostructure,
- Chromism; charge transfer, redox,

A work and interests about POMs are summarized in review paper.[1] Corroboration project is welcome to measure dielectric constant, electric conductivity, temperature variable FT-IR/UV-VIS-NIR spectra, microscope FT-IR.

Reference. Researcher ID: D-2800-2011

[1] Y. F. Song and R. Tsunashima “Recent advances on polyoxometalates-based molecular and composite materials”***Chem. Soc. Rev***., *41*, 7384-7402 (2012).

[2] D.-L. Long, R. Tsunashima, L. Cronin "Polyoxometalates: Building Blocks for Functional Nanoscale Systems", ***Angew. Chem. Int. Ed.***, *49*, 1736-1758 (2010)