

Making atomically precise metal clusters luminescent

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Atomically precise metal nanoclusters (NCs) have been attracting much attention because of their unique structural and physicochemical properties different from bulk materials. The physicochemical properties of NCs stems from their electronic structures unique to the composition and geometry and their optical response principally originates from electronic transitions between the orbitals with discrete energy levels. Extensive efforts have been devoted to making metal clusters more luminescent. The basic principle of luminescence property of NCs will be first introduced and then the topic will focus on our recent effort to design the photoluminescent metal NCs.[1-4]

[1] S. Takano et al. *J. Am. Chem. Soc.* 2021, **143**, 10560.

[2] H. Hirai et al. *Angew. Chem. Int. Ed.* 2022, **61**, e202207290.

[2] W. Ishii et al. *Chem. Commun.* 2021, **57**, 6483.

[3] W. Ishii et al. *J. Am. Chem. Soc.* 2023, **145**, 11236.



2003 Ph.D (Kyushu University)

2004-2010 Assistant professor, Nara Institute of Science and Technology

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Research Interests:

Science of nanoparticles and nanoclusters through surface chemistry; self-assembly, composite materials, optical (emission) property and chirality.

Molecular self-assembly for controlled circularly polarized luminescence (CPL) property.