Nanosized metal compounds have attracted much interest owing to their own unique properties attributed to the nanosized effect. Our research interests focus on the design and synthesis of a series of well-defined nanosized transition metal clusters, and their application as functional materials.

**Development of well-designed metal clusters**

Well-designed metal clusters can be synthesized by "template synthesis"

- Metal arrangement can be finely tuned by "ligand exchange"
- Application as catalysts, photo- and electronic-devices

**Synthesis of novel complexes consisting of both transition metal and the main group elements**

- Development of new iron-based catalyst showing high reactivity.
- A variety of catalysis are realized without the use of precious metal catalysts.