

"Bottom-up synthesis of optical resonators and lasers at micrometer scale"



Dr. Hiroshi Yamagishi

Assistant Professor Department of Materials Science Institute of Pure and Applied Sciences, Tsukuba University

Abstract

Optical resonators are minute objects that can confine light in it and are essential components in the modern optics for generating lasers and for constructing sensor tips. The resonators have been routinely curved by top-down approaches such as photolithography, but the available morphology is limited particularly along the thickness direction, hindering the invention of further integrated optical devices. Here, as an alternative to the top-down approach, we introduce a bottom-up method for making optical resonators. We design molecular structures and the non-covalent interactions between them to form optical resonators. In contrast to the conventional ones, our resonators feature intricate three-dimensional molecular architectures and exhibit unprecedented optical functions in terms of chirality, sensing ability, and flexibility.

References

[1] <u>H. Yamagishi</u> et al., Laser Photon. Rev. **2023**, 2200874.

- [2] O. Oki, <u>H. Yamagishi</u>* *et al.*, *Science* **2022**, 377, 673-678.
- [3] O. Oki, <u>H. Yamagishi</u> et al., *J. Am. Chem. Soc.* **2021**, *143*, 8772-8779.

Date: August 3 (Thur), 2023 Time: 13:00-14:00 Place: 2F Seminar Room (A207), iCeMS Main Building **Registration: Click <u>here</u>**

Contact: KUIAS iCeMS, Taniguchi Group (Secretary, Reiko Otsuka, otsuka.reiko.2n@kyoto-u.ac.jp)