

“Self-organized motion”

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I would like to talk about self-propelled objects of which driving force is the difference in the surface tension. In general,

artificial self-propelled objects exhibit random or uni-directional motion. In contrast, our objects exhibit characteristic features of motion, i.e., oscillatory motion, synchronized motion, and bifurcation by introducing nonlinearity to enhance their autonomy.

In my talk, coumarin was used as a self-propelled object and sodium phosphate disk was placed on the basement of the water phase as a base. We realized "catch and release chemotaxis", i.e., positive chemotaxis of the disk toward the base (catch), rest on the water surface above the base, and negative chemotaxis from the disk (release).