



Molecular Engine

## The 2nd International Workshop on Molecular Engine

2/7 (Mon) 18:00-20:20 JST@Zoom

### <Speakers>

Nathalie Katsonis (Faculty of Science and Engineering, University of Groningen)

Arri Priimägi (Faculty of Engineering and Natural Sciences, Tampere University)

Daisuke Suzuki (School of Science and Technology, Shinshu University)

Yoshimitsu Sagara (School of Materials and Chemical Technology, Tokyo Institute of Technology)

### <Program>

18:00-18:05      **Opening Remarks** (Prof. Kinbara, Tokyo Institute of Technology)

18:05-18:30      **Dr. Daisuke Suzuki** (Assoc. Prof., Shinshu University)

*"Nanogel assemblies that exhibit autonomous functions"*

Different from conventional stimuli responsive nanogels, we developed autonomously oscillating nanogels that show not only swelling/deswelling motion but assembling/disassembling one without applying any stimuli. In this presentation, our recent studies on characterization of the nanogel motions, and the nanogel assemblies will be discussed.

18:30-19:10      **Dr. Arri Priimägi** (Prof., Tampere University, Finland)

*"Actuators that 'learn' "*

Liquid crystal networks (LCNs) provide a rich platform for simplistically mimicking the stimuli-responsive shape changes occurring in natural systems. In general, however, their behavior remains unchanged under repeated stimuli exposure, i.e., LCNs do not "learn". But could they be designed to show programmed responses inspired by even the most elementary forms of learning? This is the question that will be elaborated in this presentation.

19:10-19:35      **Dr. Yoshimitsu Sagara** (Assoc. Prof., Tokyo Institute of Technology)

*"Supramolecular mechanophores working at single molecular level"*

Mechanophores that change the photophysical properties have attracted much attention because such mechanophores can visualize mechanical failure in polymers. Recently, our group have developed supramolecular mechanophores working at a single molecular level. The supramolecular mechanophores show instantly reversible change of emission properties.

19:35-20:15      **Dr. Nathalie Katsonis** (Prof., University of Groningen, The Netherlands)

*"Molecular nano and micro machines"*

Motion is a blueprint of life: living systems all grow, shift their shape, or change position. The origin of this purposeful motion is to be found at the molecular and supramolecular level, with molecular engines. I will present our recent efforts towards uncovering the fundamental principles behind the emerging motility of microscopic species.

20:15-20:20      **Closing Remarks** (Prof. Shishido, Tokyo Institute of Technology)