

# ORAL DEFENCE ANNOUNCEMENT



## ZHENG JIE

### Self-Assembled Structures Using CABC Multi-Block Copolymers

We studied an unprecedented temperature-selective radical generation and its use for synthesizing non-symmetric CABC multi-block copolymers and creating unique assembly structures, i.e., Janus-type particles with hetero-segment coronas and flower-like particles with hetero-segment petals. A temperature-directed micellar morphological transformation was developed using CABC multi-block copolymers with a hydrophobic block A, a hydrophilic block B, and a thermally responsive block C with a lower critical solution temperature (LCST). The micellar structure was switched from a star (below LCST) to a flower (above LCST). This transformation was unique and opened up conceptually new controlled encapsulation-release system and hidden-segment interfacial system. The assembled morphologies evolution using CABC block copolymers with different length of each segment was also studied. Varying the hydrophobicity, the assembly morphological change from spherical micelles to discs, toroids, oval toroids, and cage-like structures. We also crosslinked toroids and studied their size change below and above LCST.

<b>Date:</b>	<b>16 Jan 2020</b>
<b>Time:</b>	<b>3.20 PM</b>
<b>Venue:</b>	<b>Conference Room, Research &amp; Graduate Studies Office, Level 2, SPMS</b>
<b>Supervisor:</b>	<b>Assoc Prof Atsushi Goto</b>