



Contribution ID: 82

Type: Poster

## Anionic surfactant detection using polydiacetylene-based nanocomposites

Friday, 9 December 2022 15:30 (1h 30m)

Polydiacetylenes (PDAs) are color-responsive polymers to various stimuli. The development of PDAs as anionic surfactant sensors by structural modification involved complicated and costly processes. In this study, we introduce a facile approach for preparing polydiacetylene/zinc (II) ion/zinc oxide (PDA/Zn<sup>2+</sup>/ZnO) nanocomposites utilized for anionic surfactant detection. Cationic surfactant, cetyltrimethylammonium bromide (CTAB) is incorporated into the nanocomposites via a simple mixing process to adjust their color transition behaviors. Addition of CTAB at 1 mM induces the blue-to-yellow color transition of the nanocomposites. Interestingly, the nanocomposites exhibit yellow-to-red color transition in response to sodium dodecyl sulfate (SDS). This demonstrates the ability of the nanocomposites as anionic surfactant sensors. A key mechanism of the color transition is the interaction between CTAB and SDS, which induces perturbation in the outer layers of the nanocomposites.

**Primary author:** Mr YIMKAEW, Watsapon (Laboratory of Advanced Chromic Materials, Department of Materials Science, Faculty of Science, Chulalongkorn University, Bangkok, Thailand)

**Co-authors:** PAPADAKIS, Christine M. (Soft Matter Physics Group, Physics Department, Technical University of Munich, Garching, Germany); TRAIPHOL, Rakchart (Laboratory of Advanced Polymer and Nanomaterials, School of Materials Science and Innovation, Faculty of Science, Mahidol University, Nakhon Pathom, Thailand); TRAIPHOL, Nisanart (Laboratory of Advanced Chromic Materials, Department of Materials Science, Faculty of Science, Chulalongkorn University, Bangkok, Thailand)

**Presenter:** Mr YIMKAEW, Watsapon (Laboratory of Advanced Chromic Materials, Department of Materials Science, Faculty of Science, Chulalongkorn University, Bangkok, Thailand)

**Session Classification:** Poster Session

**Track Classification:** Soft Matter