



HOKKAIDO UNIVERSITY

# AMBITIOUS LEADER'S PROGRAM

Fostering Future Leaders to Open New Frontiers in Materials Science

Ambitious 物質科学セミナー

## Self-Assembling Behaviors of Miktoarm Star Polymers and Asymmetric Cyclic Polymers

### Prof. Moonhor Ree

POSTECH Fellow, Professor & Science Advisor (Pohang Light Sources)

Dept. of Chemistry,  
Division of Advanced Materials Science,  
POSTECH, Republic of Korea



平成 27 年 7 月 15 日(水) 15:00~16:30

北海道大学 工学部 材料・化学棟 MC102

要旨 : A series of crystalline-crystalline miktoarm star polymers was investigated their thin film morphologies by using synchrotron grazing incidence X-ray scatterings. They always underwent phase separation in thin films, forming self-assembled nanostructures. Surprisingly, their nanostructures were found to be very complex, which were far from those of conventional diblock copolymers in a same volume fraction. Such interesting nanostructuring behaviors are discussed with considering the rigid chain properties, self-assembling characteristics, conformational asymmetry, and compressibilities in addition to the imbalanced volume fraction. These miktoarm star polymers were further investigated micelle formation characteristics in solutions by synchrotron solution X-ray scattering. They also revealed very exciting micellization behaviors. The results are discussed with taking into account the rigid chain properties, self-assembling characteristics, and solvation behaviors. In addition, a series of asymmetric cyclic block copolymers were investigated in nanoscale thin films as well as in solutions. Very interesting results were observed. Such results will be discussed with considering all possible factors.

連絡先 : 北海道大学大学院工学研究院応用化学部門 佐藤 敏文

(Tel: 011-706-6606, Mail: [satoh@poly-bm.eng.hokudai.ac.jp](mailto:satoh@poly-bm.eng.hokudai.ac.jp))