



IBS Center for Molecular Spectroscopy and Dynamics

Colloquium

■ **SPEAKER**

Prof. Bong June Sung (Sogang University)

■ **TITLE**

Molecular Simulation Studies on Soft Matter

■ **ABSTRACT**

In this talk, I would like to present a few computational studies on the soft matter systems (including polymers, colloids, surfactants, and liquid crystals). Soft matter is indispensable in our daily life and modern industry. At the same time, soft matter is also a system of academic interest due to its unique character that soft matter may behave like either liquids or solids depending on the spatiotemporal scales. For example, polymer melts flow like liquids at long time scales but are still elastic like solids at short time scales. Such a unique character makes the multiscale nature and non-equilibrium dynamics of soft matter essential topics when trying to understand and design soft matter. I will take one example to illustrate how biological systems, a representative case of soft matter systems, may take advantage of the non-equilibrium nature to construct very efficient microscopic motors. As a model system, my group constructs a numerical model for a single colloid heat engine under active noises. I will discuss how the non-equilibrium nature and the active noise increase the efficiency of the single colloid heat engine even beyond the reversible engine efficiency.

■ **DATE AND VENUE**

Feb. 22, 2022 (Tuesday, 1:00 - 2:00)
Virtual Seminar

■ **LANGUAGE**

Korean

■ **INVITED BY**

Professor Kyungwon Kwak