



IBS Center for Molecular Spectroscopy and Dynamics

---

## COLLOQUIUM

---

- **SPEAKER**

Prof. Hugh I. Kim (Department of Chemistry, Korea University)

- **TITLE**

Structural and Interaction Dynamics of Amyloidogenic Proteins in Heterogeneous Systems

- **ABSTRACT**

Recently, ion mobility spectrometry equipped with ESI mass spectrometry has been successfully applied to assess the conformation of proteins in the gas phase. Electrospray ionization ion mobility mass spectrometry (ESI-IM-MS) enables the identification of individual conformers in heterogeneous conformational distributions of proteins in solution based on variances in the collision cross section ( $\Omega$ ) of their gas-phase conformations. A number of applications for characterizing the conformational conversions and assembly mechanisms of proteins with equilibrium dynamics have also been demonstrated in our laboratory including the structures of IDPs in heterogeneous systems, such as lipid membranes and aqueous-organic co-solvent systems. Several examples of our studies related to probing dynamic equilibrium states of proteins will be presented, including the supramolecular control of protein structures and probing structures of intrinsically disordered proteins (IDPs). The latter studies elucidate the characteristic structures of proteins in various environments. For example, the secondary structures of  $\alpha$ -synuclein, which is an amyloidogenic IDP, are changed by interactions with metal cations, LUVs, etc. ESI-IM-MS can distinguish and characterize different solution structures based on variances in the charge distributions and arrival time distributions of the protein ion in the gas phase.

- **DATE AND VENUE**

March 14, 2018 (Wednesday, 5:00 - 6:00 pm)  
Seminar Room 116, KU R&D Center

- **LANGUAGE**

Korean

- **INVITED BY**

Director Minhaeng Cho