Center for Molecular Spectroscopy and Dynamics, IBS-Korea University

IBS Center for Molecular Spectroscopy and Dynamics

Seminar

- **SPEAKER**
  Prof. Youngchan Kim (University of Surrey, UK)

- **TITLE**
  Quantum biology in fluorescent protein: a new model system to study quantum effects in biology

- **ABSTRACT**
  Quantum effects are usually thought be too delicate to manifest in biology since random molecular interactions was thought to be instantaneously obliterate quantum coherent molecular interactions occurring in wet biological environments. However, recent biological, chemical, and physical breakthroughs have revealed that subtle quantum effects may shape biological processes and functions, as exemplified by photosynthesis, enzyme catalysed reactions, and magnetic field effects on spin-dependent reactions in biology, to name a few. Studying coherent dipole-dipole coupling between biomolecular systems is challenging but holds many fascinating, fundamental questions that will inspire new ways to better understand and enhance health and medicine. Recent study suggests that the yellow fluorescent proteins, VenusA206, exhibit room-temperature exciton coupling when they form a dimer. Because cryogenic temperature is not required to observe such quantum effects, genetically engineered fluorescent protein assemblies could inspire a new way towards developing biological quantum technologies, such as quantum-enhanced biosensors. In this talk, I will present the recent progress in studying quantum biology using fluorescent proteins.

- **DATE AND VENUE**
  August 18, 2022 (Thursday, 16:00 - 17:00)
  Seminar Room A (116)

- **LANGUAGE**
  Korean

- **INVITED BY**
  Associate Director Wonshik Choi