



IBS Center for Molecular Spectroscopy and Dynamics

Seminar

- **SPEAKER**

Prof. Su-Hyun Gong (Department of Physics, Korea University)

- **TITLE**

Valley pseudospin dependent light-matter interaction in 2D-layered semiconductors

- **ABSTRACT**

The emergence of transition metal dichalcogenides (TMD) layers has sparked significant research interest and led to the rapid development of valleytronics. A monolayer of TMD materials has direct bandgaps consisting of two (energy-degenerate) valleys at the corners of the Brillouin zone (K , K'), which provide an opportunity to manipulate the additional degree of freedom, so called the valley degree of freedom. In this talk, the valley-selective exciton–light coupling in a TMD layer will be discussed. In weak coupling regime, we demonstrated directional emission of valley-polarized exciton into plasmonic eigenstates of a silver nanowire. In strong coupling regime, we investigated coherent coupling between exciton and photon in a thick TMD layer. Valley-dependent exciton–light coupling offers a novel platform for realization of valley transport even at room temperature without any magnetic fields.

- **DATE AND VENUE**

November 15, 2021 (Monday, 15:00 - 16:00)
Seminar Room A (116), KU R&D Center

- **LANGUAGE**

Korean

- **INVITED BY**

Prof. Tai Hyun Yoon