Center for Molecular Spectroscopy and Dynamics, IBS-Korea University

IBS Center for Molecular Spectroscopy and Dynamics

Seminar

- **SPEAKER**
  Prof. Han Seb Moon (Pusan University)

- **TITLE**
  Polarization-Entangled Photons from Warm Atomic Ensemble using Sagnac Interferometer

- **ABSTRACT**
  We report a polarization-entangled photon-pair source obtained via spontaneous four-wave mixing (SFWM) in a Doppler-broadened atomic ensemble of 87Rb atoms using a Sagnac interferometer. Collective two-photon coherence occurs in the Doppler-broadened ladder-type atomic system with bidirectional counter-propagating two-photon resonant pump and coupling fields; hence, polarization-entangled photon-pairs are collectively radiated in the phase-matched direction. Without phase stabilization of the interferometry for polarization entanglement, we robustly produce all four Bell states via a polarization Sagnac configuration. The brightness, stability, and temporal purity advantages provided by our polarization-entangled SFWM photon-pair source have very important applications in the context of a practical scalable quantum network.

- **DATE AND VENUE**
  May 2, 2019 (Thursday, 4:00 - 5:00 pm)
  Seminar Room A (116), KU R&D Center

- **LANGUAGE**
  Korean

- **INVITED BY**
  Associate Director Wonshik Choi