Center for Molecular Spectroscopy and Dynamics, IBS-Korea University

IBS Center for Molecular Spectroscopy and Dynamics

COLLOQUIUM

- **SPEAKER**
  Prof. Joerg Wrachtrup (Universität Stuttgart)

- **TITLE**
  Nanoscale quantum sensing for life science

- **ABSTRACT**
  Novel quantum technologies have lead to the development of quantum sensors with potential application in life science. By combining e.g. optical microscopy with nuclear magnetic resonance it becomes possible to measure and image cellular structures, label-free, with chemical specificity and nanoscale spatial resolution. In the talk I will discuss various quantum sensors based on spin defects in materials like diamond. With such a system we measure a wealth of quantities including electric and magnetic fields, temperature, and force. We measure those quantities under ambient conditions and with unprecedented accuracy [1-4]. I will present a variety of applications including imaging of cellular structures.

  References

  [1] N. Aslam et al. Science 0.1126/science.aam8697 (2017)

  [2] L. Schlipf et al. Science Advances 3:e1701116 (2017) DOI: 10.1126/sciadv.1701116

  [3] F. F. de Oliveira, et al. Nat. Commun. 8, 15409 doi: 10.1038/ncomms15409 (2017)

  [4] M Pfender et al., arXiv:1806.02181

- **DATE AND VENUE**
  September 17, 2018 (Monday, 5:00 - 6:00 pm)
  Seminar Room B 119, KU R&D Center

- **LANGUAGE**
  English

- **INVITED BY**
  Director Minhaeng Cho