Georg H. Endress Research Seminar Announcement

Speaker: Chao Li (University of Basel, Meyer Group)

Date: Mai 29th 2024

Time: 16:15 o'clock

Location: Albert Ludwig's University of Freiburg
Seminar room 915, Physics-High-Rise Building

Title: Direct Observation of Quantum Phase Transition in a Radical Molecule on the Pb(111) Superconducto

Abstract:

Observing quantum phase transitions in molecules is a challenging task, primarily due to inherent complexities and limitations within the molecules. We studied a radical molecule of 4,5,9,10-tetrabromo-1,3,6,8-tetraazapyrene (TBTAP•−)on a Pb(111) superconducting surface. Low-temperature scanning tunneling microscope images on Pb(111) reveals its rectangular shape while scanning tunneling spectra show Yu-Shiba-Rusinov (YSR) states near the Fermi energy within the superconducting gaps on the molecules. The evolution of YSR energy with tip-to-molecule distance shows a quantum phase transition between singlet and doublet ground states. Moreover, different constructions of the dimer show magnetic coupling features among the molecules.