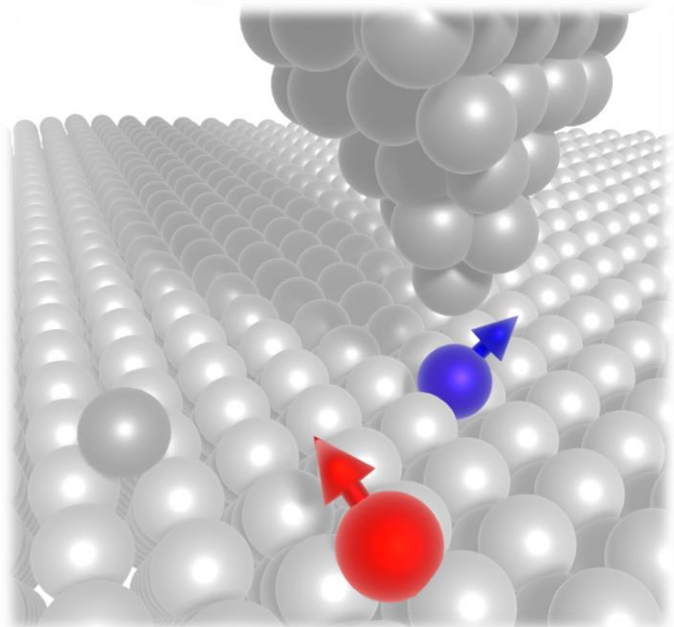


Einladung zum Physikalischen Kolloquium

17.05.2024 **Katharina Franke, Freie Universität Berlin**
**»Single magnetic adatoms on superconductors –
probed by scanning tunneling and Josephson spectroscopy«**
Einführung: W. Wulfhekel

Magnetic adatoms on superconductors induce bound states – known as Yu-Shiba-Rusinov (YSR) states - inside the superconducting energy gap of the underlying substrate. These states have been widely characterized by scanning tunneling microscopy/spectroscopy (STM/STS), leading to a fundamental understanding on how spin-carrying orbitals exchange couple to the substrate, how the YSR states hybridize and how they eventually form bands within the superconducting energy gap. Additionally, magnetic adatoms on superconductors have been recognized as essential components in the construction of nanostructures featuring non-trivial topological characteristics.



Adding to this versatile platform, magnetic adatoms can be included into Josephson junctions formed by approaching the atom with a superconducting STM tip. Remarkably, the presence of YSR states induces diode-like behavior of the Josephson junction. This implies that the junction allows for dissipationless supercurrent flow in one direction, while the current in the other direction underlies dissipation.

Der Vortrag findet **am Freitag, den 17. Mai 2024 um 15:45 Uhr im Otto-Lehmann-Hörsaal**, Physik-Flachbau (Geb. 30.22), KIT-Campus Süd statt.