

## **Yu-Shiba-Rusinov states in real metals**

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Yu-Shiba-Rusinov states are currently attracting much interest, for instance as building blocks for designing exotic states of matter. At present, significant parts of the theoretical literature focus on classical adatom spins or quantum spin-1/2 systems. In contrast, experiments are probing a wide selection of magnetic adatoms and substrates under conditions, which are not adequately captured by such models. In this talk, I will discuss a simple and transparent approach that allows one to discuss general quantum spins on superconducting substrates, ranging from monomers to dimers all the way to adatom chains. I will use this approach to explore the differences between the classical and quantum phase diagrams of adatom dimers as well as the fate of topological superconducting phases in dilute adatom chains.