

Emergent SU(4) Kondo physics in a spin-charge-entangled double quantum dot

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Quantum impurity models, which describe how a local degree of freedom interacts with a continuum, are central to condensed-matter physics. Such models may be naturally implemented with quantum dots coupled to each other and to metallic leads. Here we detail a many-body Kondo state occurring when two quantum dots are coupled electrostatically. We use orbital state-resolved bias spectroscopy to demonstrate the entanglement of spin and charge between spatially separated orbitals of the Kondo state. Detailed agreement between transport measurements and numerical renormalization group calculations suggests an emergent SU(4) symmetry.

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