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Coupling the spin resonance states in a carbon nanotube quantum dot to a dissipative environment MATTHEW MEERS, GU ZHANG, CHUNG TING KE, HENOK MEBRAHTU, Duke University, ALEX SMIRNOV, North Carolina State University, HAROLD BARANGER, GLEB FINKELSTEIN, Duke University — When a resonance level couples to a dissipative environment, electrons tunnel only with a specific spectral function. Previously, we have restored single channel conductance by fine tuning the symmetry of tunneling barriers and the position of the resonance level with the spin degree of freedom. From this restoration of e^2/h, a quantum critical point and quantum phase transition can be observed. We study a series of devices with dissipation strengths of r =0.1, 0.3, 0.5 and 0.75 at zero field, where r is R_{Lead}/R$_q$, (R_q=h/e^2). A peak bending feature is observed, which indicates a non-fixed point on a RG flow diagram. In addition, peak shifts change with temperature, especially for higher dissipation samples. This may indicate the restoration of an RG fixed point at higher temperature. We further explore the Kondo regime for spin and singlet-triplet in the even valley. In a dissipative environment, the T_K is highly suppressed and spin Kondo can be only observed for r=0.1. When r $\geq$ 0.3, spin Kondo is not observable. This may be due to the exponential decay of T_K in the dissipation strength r. However, a spin singlet-triplet Kondo is observed for r=0.5. By fitting to our data to theory, we find that T_{KS-T} can be higher than $T_{K-1/2}$ for r=0.5

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