# Interplay of electromagnetic noise and Kondo effect in quantum dots

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We investigate the influence of an electromagnetic environment, characterized by a finite impedance $Z(\omega)$, on the Kondo effect in quantum dots. The circuit voltage fluctuations couple to charge fluctuations in the dot and influence the spin exchange processes transferring charge between the electrodes. The resulting low-energy transport properties are characterized by anomalous power laws, in particular the conductance can vanish even in the presence of a screened impurity spin. The extension to capacitively coupled quantum dots provides the possibility of both entangling spin-charge degrees of freedom and realizing efficient spin-filtering operations by static gate-voltage manipulations. In view of potential applications in quantum computing, we study the influence of electromagnetic noise on a general spin-orbital Kondo model, and investigate the conditions for observing coherent, unitary transport, crucial to warrant efficient spin manipulations.