**Kondo QED: The Kondo effect and photon trapping in a two-impurity Anderson model ultra-strongly coupled to light**

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The Kondo effect is one of the most studied examples of strongly correlated quantum many-body physics. Another type of strongly correlated physics that has only recently been explored in detail (and become experimentally accessible) is that of ultrastrong coupling between light and matter. Here, we study a system which we denote as "Kondo QED") that combines both phenomena, consisting of a two-impurity Anderson model ultra-strongly coupled to a single-mode cavity. While presented as an abstract model, it is relevant for a range of future hybrid cavity-QED systems. Using the hierarchical equations of motion approach we show that the ultrastrong coupling of cavity photons to the electronic states (impurity) noticeably suppresses the electronic Kondo resonance due to the destruction of many-body correlations of the Kondo cloud. We observe this transfer of correlations from the Kondo cloud to the cavity by computing the entropy and mutual information of the impurity-cavity subsystems. In addition, in the weak lead-coupling limit and at zero-bias, the model exhibits a ground-state photon accumulation effect originating entirely from counter-rotating terms in the impurity-cavity interaction. Interestingly, in the strong lead-coupling limit, this accumulation is ``Kondo-enhanced'' by new transition paths opening when increasing the hybridization to the leads. This suggests a new mechanism for the generation of real photons from virtual states. We further show that the suppression of the Kondo effect is stable under broadening of the cavity resonance as a consequence of the interaction to an external bosonic continuum. Our findings pave the way for the simultaneous control of both the Kondo QED effect and a photon accumulation effect using the ultrastrong coupling of light and matter.