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Capacitively coupled double quantum dot system in the Kondo regime¹ EDSON VERNEK, IRISNEI FERREIRA, Universidade Federal de Uberlândia - Brazil, PEDRO ORELLANA, Universidad Catolica del Norte - Chile, GEORGE MARTINS, Oakland University - USA, FABRICIO SOUZA, Universidade Federal de Uberlândia - Brazil — We present a detailed study of the low-temperature physics of an interacting double quantum dot system in a T-shape configuration is presented. Each quantum dot is modeled by a single Anderson impurity and we include an inter-dot electron-electron interaction to account for capacitive coupling that may arise due to the proximity of the quantum dots. By employing a numerical renormalization group approach to a multi-impurity Anderson model, we study the thermodynamical and transport properties of the system in and out of the Kondo regime. We find that the two-stage-Kondo effect reported in previous works is drastically affected by the inter-dot Coulomb repulsion. In particular, we find that the Kondo temperature for the second stage of the two-stage-Kondo effect increases exponentially with the inter-dot Coulomb repulsion, providing a possible path for its experimental observation.

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