Kondo Resonance in the Presence of Spin-Polarized Currents
YUNONG QI, University of Houston, JIAN-XIN ZHU, Los Alamos National Laboratory, SHUFENG ZHANG, University of Missouri-Columbia, CHIN-SHEN TING, University of Houston — We propose an improved method of the equation of motion approach to study the Kondo problem in spin-dependent non-equilibrium conditions. We found that the previously introduced additional renormalization for non-equilibrium Kondo effects is not required when we use a proper decoupling scheme. Our improved formulation is then applied to address the spin-split Kondo peaks when a spin current injects into a Kondo system. We believe that this work significantly advances our understanding of the non-equilibrium Kondo physics, and our predictions of the Kondo resonance are timely for the application of non-equilibrium spin-related phenomena.

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