

Abstract Submitted  
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**Heat current characteristics in nanojunctions: The effect of external magnetic fields**<sup>1</sup> D. MELISA DOMINGUEZ, Universidad de Antioquia, JULIANA RESTREPO, Universidad Antonio Nario, BORIS A. RODRIGUEZ, Universidad de Antioquia, R CHITRA, Institute of Theoretical Physics ETH — We study the heat current in the simplest hybrid device of a two level system weakly coupled to two heat baths. We consider both metallic and semiconducting baths with external magnetic fields applied on the central spin and the baths. By using a reduced density matrix approach together with a simple Born-Markov approximation we calculate the heat current. Our goal is to investigate the effect of the applied fields in the transient and steady state heat current, the ensuing rectification and the possibility of using our setup as a building block for a quantum thermal diode.

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