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**Universality and the thermoelectric transport properties through quantum dots systems: Seeking for conditions that could improve the efficiency****Roberto Franco Peñaloza***National University of Colombia, Colombia*

Employing universal relations obtained recently for the Onsager transport coefficients in the linear regime at the symmetric point of the single impurity Anderson model and using the Mahan-Sofa parameter, we obtain conditions for the quantum scattering phase shift associated with the asymptotic Carnot's limit for the thermoelectric efficiency. We show that is impossible with a single quantum dot at the Kondo regime achieve the conditions that causes the improving of the thermoelectric efficiency. We study a system of two coupled identical quantum dots, without inter-dot correlations and preserving one dot in the electron-hole symmetric point; employing analogies between this system - similar to a quantum dot in the electron-hole symmetric point, immersed in a non-ballistic quantum wire- and the original system -a quantum dot at the symmetric electron-hole point, immersed in a ballistic quantum wire-; we show that is possible to obtain conditions for the quantum phase shift - linked to charge fluctuations in one of the quantum dots - that satisfy the conditions associated with enhance the thermoelectric efficiency in this system, we discuss the presence of bound states in the continuum associated to the quantum scattering-interference process that improve the efficiency. We describe "anomalies" in the photo-emission spectroscopy and inverse photo-emission spectroscopy that "arise" associated to the conditions that enhance the efficiency in order to guide possible experimental work that submit to the experimental test our theoretical predictions, discussing to possible temperature values and conditions that could be linked with the experimental research of our results.

**Biography**

Roberto Franco Peñaloza is bachelor in Physics by the Universidad del Valle (Valley University) – Cali (Colombia), complete his Ph.D. in Theoretical Solid State Physics in the Physics Institute – Federal Fluminense University, Niterói – Rio de Janeiro (Brazil), had a Post-Doctoral Position in the Catholic University of Rio de Janeiro financed by the Latin American Center of Physics. Is associated professor of the Physics Department – Colombia National University, Bogotá.