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JOHANNES GUTENBERG UNIVERSITÄT MAINZ

Theory of Condensed Matter: Hard Condensed Matter

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Ora Entin-Wohlmann
Ben Gurion and Tel Aviv Universities

“Thermoelectricity in nano-junctions”

Following a general introduction into thermoelectricity in coherent electronic junctions, the efficiencies/coefficients of performance of three-terminal devices, comprising two electronic terminals and a thermal one (e.g., a boson bath) will be discussed. In particular, two procedures are analyzed. (a) One of the electronic terminals is cooled by investing thermal power (from the thermal bath) and electric power (from voltage applied across the electronic junction); (b) The invested thermal power from the boson bath is exploited to cool one electronic terminal and to produce electric power. Rather surprisingly, the coefficient of performance of (b) can be enhanced as compared to that of (a).

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