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Energy Transport in Quantum Systems with Discrete Spectrum[1] GEORGE LEVIN, WESLEY JONES, KAMIL WALCZAK, KIRK YERKES, Air Force Research laboratory, THERMAL MANAGEMENT TEAM — Energy transport in quantum system driven by stochastic perturbations is examined. One of the goals of this study is to determine how the Landauer channels can be defined in a system with discrete energy spectrum. A model describes a particle trapped in a confining potential and subjected to a stochastic perturbation localized off-center of the potential well. The perturbation pumps energy into the system which results in non-zero average energy flux between different regions of the confining potential. The energy flux can be defined in terms of quantum advection modes, where each mode is associated with an off-diagonal element of the density matrix and carries a finite, quantized amount of energy per unit of the probability flux. Statistical correlations between different modes and the net energy flux will be discussed.

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