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A Quantum Model of Almost Perfect Energy Transfer

Robert ALICKI Institute of Theoretical Physics and Astrophysics University of Gdansk PL- 80-952 Gdansk, Poland

Abstract:

The Wigner-Weisskopf-type model describing the energy transfer between two centers mediated by a continuum of energy levels is studied. This work is motivated by the recent interest in transport phenomena at nanoscale in biology and quantum engineering. The analytical estimation for the energy transfer efficiency is derived in the weak coupling regime and the conditions for the almost perfect transfer are discussed.