System-reservoir non-hermitian PT-symmetric linear response model

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Abstract

Considering a non-hermitian and PT-symmetric interaction term the system-plus-reservoir linear response model is investigated. A similarity transformation is constructed in order to find the hermitian counterpart of the Hamiltonian of the system. The reduced density operator is obtained by the functional integral method and subsequently a master equation is deduced in a suitable regime of interest. The energy dissipative process described for this PT-symmetric Hamiltonian is studied and compared with the original case where a Hermitian interaction is considered.