

Quantum noise and self-sustained radiation of PT-symmetric systems

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(Submitted on 4 Jan 2010)

The observation that PT-symmetric Hamiltonians can have real-valued energy levels even if they are non-hermitian has triggered intense activities, with experiments in particular focusing on optical systems, where hermiticity can be broken by absorption and amplification. For classical waves, absorption and amplification are related by time-reversal symmetry. This work shows that microreversibility-breaking quantum noise turns PT-symmetric systems into self-sustained sources of radiation, which distinguishes them from ordinary, hermitian quantum systems.

Comments: 4 pages, 1 figure (postscript)

Subjects: **Quantum Physics (quant-ph)**; Other Condensed Matter (cond-mat.other); Optics (physics.optics)

Cite as: [arXiv:1001.0539v1](#) [**quant-ph**]

Submission history

From: Henning Schomerus [[view email](#)]

[v1] Mon, 4 Jan 2010 18:06:20 GMT (179kb)

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