

M. Thaha and R. Blümel, *Bull. Am. Phys. Soc.* 33, 605 (94)

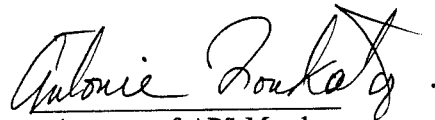
Abstract Submitted
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Suggested Session Title
Localization in low D systems,
Chaos

March Sorting Category
17e, 18b

Nonuniversality of localization length in a quantum chaotic system.

M. Thaha, R. Blümel, Department of Physics and Astronomy, University of Delaware. --- Breaking an antiunitary symmetry modifies the localisation length. In analogy to results obtained recently in the context of Anderson localization in disordered solids, we establish that the localization length λ of a dynamically localizing quantum systems depends on the invariance properties of the system under antiunitary symmetry operations. We consider a Hamiltonian system—a modified version of the kicked rotor—which, by tuning its parameters, can change its invariance properties in a manner similar to the (Gaussian orthogonal ensemble) \rightarrow (Gaussian unitary ensemble) \rightarrow (Gaussian symplectic ensemble) transitions ($\beta = 1 \rightarrow \beta = 2 \rightarrow \beta = 4$) in Dyson's theory of random matrices. We find that λ , as long as the Kramers degeneracy is not broken, depends on the universality class according to $\lambda(\beta) = \beta\lambda(\beta = 1)$. When Kramers degeneracy is broken, we find nonuniversal changes in the localization length.



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Address

- Prefer Poster Session
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