"Chaos" in a simple quantum graph

Daniel Vašata

FNSPE, CTU in Prague

We study a simple one-dimensional quantum system on a circle with n scale-free point interactions. The spectrum of this system is discrete and expressible as a solution of an explicit secular equation. However, its statistical properties are nontrivial. The level spacing distribution between its neighbouring odd and even levels displays a surprising agreement with the prediction obtained for the Gaussian Orthogonal Ensemble of random matrices.