

Spectral and resonance properties of the Smilansky model

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We analyze the Hamiltonian proposed by Smilansky to describe irreversible dynamics in quantum graphs and studied further by Solomyak and others. We derive a weak-coupling asymptotics of the ground state and add new insights by finding the discrete spectrum numerically in the subcritical case. Furthermore, we show that the model then has a rich resonance structure.

This is a joint work with P. Exner and V. Lotoreichik.

References

[1] P. Exner, V. Lotoreichik, M. Tater, Spectral and resonance properties of Smilansky Hamiltonian, *Phys. Lett. A* **381** (2017), 756-761

[2] P. Exner, V. Lotoreichik, M. Tater, On resonances and bound states of Smilansky Hamiltonian, *Nanosystems: Phys. Chem. Math.* **7** (2016), 789-802