Evans, W. D. [Evans, William Desmond] (4-CARD-SM); Solomyak, M. [Solomyak, Michael] (IL-WEIZ)

Smilansky’s model of irreversible quantum graphs. I. The absolutely continuous spectrum. (English summary)


U. Smilansky [Waves Random Media **14** (2004), no. 1, S143–S153; MR2042550 (2004m:82087)] discussed an operator describing the interaction between a quantum graph and a system of $K$ one-dimensional oscillators attached at several different points in the graph, where the Hamiltonian is the sum of

$$h_k = \frac{v_k^2}{2} \left( -\frac{\partial^2}{\partial q_k^2} + q_k^2 \right), \quad k = 1, \ldots, K.$$

Here, a quantum graph stands for a metric graph $\Gamma$ equipped with a self-adjoint differential operator acting on $L^2(\Gamma)$. In this paper the case with $K > 1$ is first investigated based on the scattering theory. The absolutely continuous spectrum is predicted and discussed.

Reviewed by Haruo Hosoya

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