Spectral theory of Schrödinger operators with point interactions on a discrete set

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One-dimensional Schrödinger operator $\mathrm{H}_{X,\alpha}$ with δ-interactions on a discrete set is investigated in the framework of the extension theory. Applying the technique of boundary triplets and the corresponding Weyl functions, a connection of the operators with a certain class of Jacobi matrices has been established. The discovered connection enables us to obtain conditions for the self-adjointness, lower semiboundedness, discreteness of the spectrum, and discreteness of the negative part of the spectrum of the operator $\mathrm{H}_{X,\alpha}$.

The talk is based on joint works with S. Albeverio and A. Kostenko [1,2].

[1] *S. Albeverio, A. Kostenko, M. Malamud*, Spectral theory of semi-bounded Schrödinger operators with point interactions on a discrete set, *submitted*.
[2] *A. Kostenko and M. Malamud*, 1–D Schrödinger operators with local point interactions on a discrete set, *J. Differential Equations* **249** (2010), 253–304.