The Maslov index in spectral theory: an overview

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This talk is centered around a symplectic approach to eigenvalue problems for systems of ordinary differential operators (e.g., Sturm-Liouville operators, canonical systems, and quantum graphs), multidimensional elliptic operators on bounded domains, and abstract self-adjoint extensions of symmetric operators in Hilbert spaces. The symplectic view naturally relates spectral counts for self-adjoint problems to the topological invariant called the Maslov index. In this talk, the notion of the Malsov index will be introduced in analytic terms and an overview of recent results on its role in spectral theory will be given.