

A. A. Shkalikov (Lomonosov Moscow State University, Russia)

Properties of self-adjoint operators under J -self-adjoint perturbations

Let A be a self-adjoint operator on a Hilbert space \mathcal{H} and its spectrum consists of two disjoint components σ_0 and σ_1 . Let V be a bounded operator on \mathcal{H} , off-diagonal and J -self-adjoint with respect to the orthogonal decomposition $\mathcal{H} = \mathcal{H}_0 \oplus \mathcal{H}_1$ where \mathcal{H}_0 and \mathcal{H}_1 are the spectral subspaces of A associated with the spectral sets σ_0 and σ_1 , respectively. We find conditions on V guaranteeing that the perturbed operator $L = A + V$ is similar to a self-adjoint operator. As application we consider the so called \mathcal{PT} -symmetric differential operators.

A part of the talk is based on the joint work with S. Albeveio and A. K. Motovilov.
