

Trace formulas for relative Schatten class perturbations

Abstract: Let H_0 be a self-adjoint operator defined in a separable Hilbert space \mathcal{H} , V a bounded self-adjoint operator on \mathcal{H} , and f a sufficiently nice scalar function on \mathbb{R} . Finding an efficient approximation for the perturbed operator function $f(H_0 + V)$ by initial data and describing the trace of the respective remainder of the approximation is an old problem in perturbation theory. The aforementioned problem has been successfully resolved by Potapov, Skripka and Sukochev (2013) under the assumption $V \in \mathcal{B}_n(\mathcal{H})$, $n \in \mathbb{N}$, where $\mathcal{B}_n(\mathcal{H})$ denotes the Schatten n -class of operators on \mathcal{H} . In this talk, we consider the *relative Schatten class* condition, that is $(H_0 - i)^{-1}V \in \mathcal{B}_n(\mathcal{H})$ and try to describe the trace of the respective remainder of the approximation. This is a joint work with Anna Skripka.