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SPECIAL OPERATOR CLASSES AND THEIR PROPERTIES

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ABSTRACT. We introduce some special operator classes and study in terms of Berezin symbols their properties. In particular, we give some characterizations of compact operators and Schatten-von Neumann class operators in terms of Berezin symbols. We also consider some classes of compact operators on a Hilbert space H, which are generalizations of the well known Schatten-von Neumann classes of compact operators. Namely, for any number p, 0 , $and the sequence <math>w := (w_n)_{n\geq 0}$ of complex numbers $w_n, n \geq 0$, we define the following classes of compact operators on H:

$$S_p^w(H) = \left\{ K \in S_\infty(H) : \sum_{n=0}^\infty (s_n(K))^p w_n^p \text{ is convergent series} \right\},\$$

where $s_n(K)$ denotes the *n*th singular number of the operator K. The characterizations of these classes are given in terms of Berezin symbols.

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