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Operational quantities derived from the norm and generalized Fredholm theory

Abstract: We introduce and study some operational quantities associated to a space ideal $\mathbb{A}$. These quantities are used to define generalized semi-Fredholm operators associated to $\mathbb{A}$, and the corresponding perturbation classes which extend the strictly singular and strictly cosingular operators, and we study the generalized Fredholm theory obtained in this way. Finally we present some examples and show that the classes of generalized semi-Fredholm operators are non-trivial for several classical space ideals.