Completions of upper-triangular matrices to Kato nonsingularity

Vladimir Pavlović

University of Niš, Faculty of Science and Mathematics, Niš, SERBIA
[vlada@pmf.ni.ac.rs]

In this paper we consider the problem of completion of the upper-triangular operator matrix
\[
\begin{pmatrix}
A & ? \\
0 & B
\end{pmatrix}
\]
where \(A \in \mathcal{B}(\mathcal{H})\) and \(B \in \mathcal{B}(\mathcal{K})\), to Kato nonsingular operators and completely solve it in each of the following cases: one of the operators \(A\) or \(B\) is Kato nonsingular; \(B\) is injective; \(A\) is with dense range; \(B\) is with finite ascent; \(A\) is with finite descent; \(0 \not\in \text{int}(\sigma_p(B))\); \(0 \not\in \text{int}(\sigma_{cp}(A))\). In particular, the results generalize and complete some of the previously obtained concerning the same problem.

This is a joint work with D. S. Cvetković-Ilić.