SEMIGROUP GENERATIONS OF UNBOUNDED BLOCK OPERATOR MATRICES BASED ON THE SPACE DECOMPOSITION

Jie Liu, Junjie Huang and Alatancang Chen

Abstract. This paper deals with the problem for unbounded block operator matrix

\[ M = \begin{pmatrix} A & B \\ C & D \end{pmatrix} \]

with natural domain to generate \( C_0 \) semigroups, based on the space decomposition. By describing the spectral inclusion relations between the numerical range of \( M \) and its inner entries, using the quadratic complements of \( M \), some necessary and sufficient conditions for \( M \) to generate \( C_0 \) semigroups are given.


Keywords and phrases: Unbounded block operator matrix, generator, \( C_0 \) semigroup, space decomposition.

REFERENCES