

Unbounded block operator matrices and recent applications

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Spectral problems for systems of ordinary or partial linear differential equations occur frequently in mathematical physics. The spectral theory of block operator matrices is a powerful tool to study their spectral properties. Various methods to enclose the spectrum and to investigate its structure are presented. Examples from several applications including magnetohydrodynamics and quantum mechanics are given.

The talk is based on joint work with various coauthors, in particular, including H. Langer and U. Günther.