Standard Triples of Structured Matrix Polynomials

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Abstract

The notion of standard triples for matrix polynomials, introduced and developed by Gohberg, Lancaster and Rodman (see for example [1]), plays a central role in the theory of matrix polynomials. We study such triples for structured matrix polynomials and introduce the notion of S-structured standard triple. We show that for most structures S arising in applications (see the NLEVP collection [2]), a matrix polynomial P has structure S if and only if P has an S-structured standard triple. This result represents a first step towards the solution of the structured inverse polynomial eigenvalue problem: given a list of eigenvalues admissible for the structure, and possibly, corresponding right eigenvectors, construct a structured matrix polynomial having these eigenvalues and eigenvectors.

Reference

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