

Quadratic matrix polynomials: solvents and inverse problems

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I start with the famous theorem of Langer on the factorization of Hermitian matrix functions. When applied to monic quadratic polynomials the factorization determines a right divisor and a left divisor. The strategy we follow for the inverse eigenvalue problem is to assign half the spectrum by fixing a right divisor. We then examine the class of compatible left divisors. In contrast to earlier investigations we can cope with mixed real/non-real eigenvalues and keep track of sign characteristics associated with real eigenvalues.

This is collaborative work with F. Tisseur.