

Explicit Factorization of Matrix Functions with Mathematica 6.0

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The aim of this talk is to present our progress in the explicit factorization of some special matrix-valued functions. We construct an algorithm to obtain the solutions of certain singular integral equations related with a self-adjoint operator. Using these solutions we construct another algorithm to determine an effective factorization of the matrix functions. Using Mathematica 6.0 symbolic computation package we implement the two algorithms on a digital computer, automating the factorization process as a whole. We present some examples, both in the real line and in the unit circle, obtained with the Mathematica application.

The talk is based on a joint work with J. Pereira and V. Kravchenko.