

# Structured matrix polynomials in indefinite scalar product spaces

V. Mehrmann

joint work with R. Byers, S. Mackey, C. Mehl, and H. Xu

We give several different formulations for the continuous and discrete linear-quadratic control problem in terms of structured matrix polynomials.

We discuss the relationships among the associated structured objects: symplectic matrices and pencils, BVD-pencils/polynomials, and the recently introduced classes of palindromic matrix pencils/polynomials in the discrete-time case, Hamiltonian matrices, Hamiltonian pencils, even/odd matrix pencils/polynomials in the continuous time case.