Factorization Problem for Operator-Valued Herglotz Functions: Geometric Approach

Alexander K. Motovilov
University of Missouri-Columbia and JINR, Dubna, Russia

The spectral subspace perturbation problem for linear self-adjoint operators can be viewed as the factorization problem for a class of operator-valued Herglotz functions. Splitting off a linear factor from the Herglotz function in question ensures the representation of a perturbed spectral subspace as the graph of a linear operator which, in turn, solves the related operator Riccati equation. In the present work we obtain a series of new factorization results for operator-valued Herglotz functions based, in particular, on geometric consideration. Some of our factorization theorems are optimal.

This is a joint work with V. Kostrykin and K.A. Makarov.