

The Technique of Splitting Operators in Perturbation Control Theory

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Abstract: The paper presents the technique of splitting operators, intended for perturbation analysis of control problems involving unitary matrices. Combined with the technique of Lyapunov majorants and the application of the Banach or Schauder fixed point principles, it allows to obtain rigorous non-local perturbation bounds for a set of sensitivity analysis problems. Among them are the reduction of linear systems into orthogonal canonical forms, the general feedback synthesis problem, and the pole assignment problem in particular, as well as other basic problems in control theory and linear algebra.

Keywords: perturbation analysis; canonical forms; feedback synthesis;

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