

**PARAMETERIZATION OF FEASIBLE SOLUTIONS IN PROBLEMS OF  
CONTROL AND SIGNAL FILTERING**  
*SURVEY*

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**ABSTRACT.** This is a survey of results on parameterization of all stabilizing regulators and filters in  $H_\infty$  and  $H_2$  control and filtering problems. We focus on frequency domain methods of synthesis of optimal regulators or filters for linear stationary systems. Connections between different parameterizations which have been offered by various authors are shown. Examples of procedures of parameterizations in several different problems of synthesis (for example, control problems involving plants time delays and multi-channel filtering problems) are given.

**Keywords:** LQG problem; parameterization of the set of stabilizing regulators, feedback systems; filtering and estimation.