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STATIC OUTPUT FEEDBACK DESIGN IN AN ANISOTROPIC NORM SETUP*

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Dedicated to Dr. Vasile Drăgan on the occasion of his 70th anniversary

Abstract

The design of static output feedback controllers in an anisotropic norm setup is considered. The aim is to determine a stabilizing static output feedback for a given four block system such that the resulting closed loop system has the a-anisotropic norm less than a given $\gamma > 0$. The solvability conditions are expressed in terms of the solution of a rank minimization problem with linear matrix inequalities constraints. Based on the specific form of these constraints it is shown that a solution of this problem may be obtained solving a semidefinite programming problem.
MSC: 37N35, 37N40, 39A30, 93C55

keywords: Discrete-time linear systems, static output feedback, stability, anisotropic norm, boundedness conditions, positive semidefinite programming

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