STATIC OUTPUT FEEDBACK CONTROL OF LINEAR PARAMETER VARYING SYSTEMS[*]

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Dedicated to Dr. Dan Tiba on the occasion of his 70th anniversary

Abstract

The synthesis problem of static output feedback controllers within the anisotropic-norm setup for Linear Parameter Varying system is considered. A synthesis approach involving iterations over a convex optimisation problem is suggested, leading to a gain-scheduled controller. The results are formulated by a couple of Linear Matrix Inequalities and a coupling bilinear equality, using a parameter dependent Lyapunov function. Following LPVTOOL, the problem which is continuous in the gain-scheduling parameter, and hence infinite dimensional, is approximated by a finite grid leading to a tractable sequence of convex optimization problems. The design method is demonstrated on a simple example from the field of flight control.

MSC: 93C05, 93B25, 93C55, 93D15, 93C95.

keywords: H_∞, LPV, Static Output Feedback, Anisotropic Norm