

Abstract

In this thesis, the necessary and sufficient conditions are given for the existence of a solution to the continuous-and discrete-time H_{∞} model reduction problem. These conditions are expressed in terms of linear matrix inequalities (LMIs) and a coupling non-convex rank constraint set. Furthermore, the parametrization of all reduced order models that correspond to a feasible solution is provided. The alternating projection method is tried to be implemented to this problem and related computational issues are discussed.