

论文

POPOV METHOD FOR ROBUST ANALYSIS AND ROBUST SYNTHESIS OF MIMO LINEAR SYSTEMS WITH PARAMETRIC UNCERTAINTIES

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摘要 The paper discusses the problem of robust analysis and robust synthesis for MIMO linear systems with parametric uncertainties by using Popov method. First, the famous Popov criterion is recasted as a convex optimization problem and a new method for calculating Popov multiplier is provided so that Popov criterion can be effectively used for analyzing MIMO systems. Then the method of using Popov criterion to analyze parametric uncertainties is studied. Compared with other ones, this method is less conservative and much quicker. At last, a direct search method is adopted to design robust controller based on Popov criterion.

关键词 [Parametric uncertainties](#), [Popov criterion](#)

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Abstract The paper discusses the problem of robust analysis and robust synthesis for MIMO linear systems with parametric uncertainties by using Popov method. First, the famous Popov criterion is recasted as a convex optimization problem and a new method for calculating Popov multiplier is provided so that Popov criterion can be effectively used for analyzing MIMO systems. Then the method of using Popov criterion to analyze parametric uncertainties is studied. Compared with other ones, this method is less conservative and much quicker. At last, a direct search method is adopted to design robust controller based on Popov criterion.

Key words [Parametric uncertainties](#), [Popov criterion](#), [linear matrix inequality](#), [robust analysis](#), [robust synthesis](#)

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