论文

POLYTOPIC PERTURBATION BOUND FOR STABILITY OF POLYNOMIALS

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收稿日期   修回日期   网络版发布日期   接受日期

摘要   The presence of uncertain parameters in the state space or frequency domain description of a time-invariant system manifests itself as variability in the coefficients of the characteristic polynomial.In this paper, a new approach is proposed to analyze the stability robustness of Hurwitz polynomials with polytopic uncertainties in the coefficient space. This method is very simple and the perturbation bounds can be calculated easily on computer. From this result, the largest polytope in the coefficient space can be found such that the perturbed polynomial remains stable.

关键词   Parametric uncertainty, stability robust

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Abstract The presence of uncertain parameters in the state space or frequency domain description of a time-invariant system manifests itself as variability in the coefficients of the characteristic polynomial.In this paper, a new approach is proposed to analyze the stability robustness of Hurwitz polynomials with polytopic uncertainties in the coefficient space. This method is very simple and the perturbation bounds can be calculated easily on computer. From this result, the largest polytope in the coefficient space can be found such that the perturbed polynomial remains stable.

Key words   Parametric uncertainty   stability robustness   edgewise-perturbed bound   polytopic perturbation bound

DOI:

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