

短文

## 不确定离散系统的峰峰增益优化：矩阵不等式方法

嵇小辅, 苏宏业, 褚健

1. National Key Laboratory of Industrial Control Technology, Institute of Advanced Process Control, Zhejiang University, Hangzhou 310027, P.R.China

2. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang 212013, P.R.China

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摘要

A matrix inequality approach to peak-to-peak gain minimization for a class of uncertain linear discrete systems is studied. We minimize the  $\infty$ -norm, which is the best upper bound on the induced  $L_\infty$  norm obtained by bounding the reachable set with inescapable ellipsoids, instead of minimizing the induced  $L_\infty$  norm directly. Based on this idea, the problems of robust peak-to-peak gain minimization and controller synthesis are reduced to solving the feasibility problems of a set of matrix inequalities. A numerical example is used to demonstrate the feasibility and effectiveness of the presented method.

关键词 [Uncertain linear discrete system](#) [peak-to-peak gain](#) [robust control](#)

分类号

## Peak-to-Peak Gain Minimization for Uncertain Linear Discrete Systems: A Matrix Inequality Approach

Ji Xiao-Fu, SU Hong-Ye, CHU Jian

1. National Key Laboratory of Industrial Control Technology, Institute of Advanced Process Control, Zhejiang University, Hangzhou 310027, P.R.China

2. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang 212013, P.R.China

Abstract

A matrix inequality approach to peak-to-peak gain minimization for a class of uncertain linear discrete systems is studied. We minimize the  $\infty$ -norm, which is the best upper bound on the induced  $L_\infty$  norm obtained by bounding the reachable set with inescapable ellipsoids, instead of minimizing the induced  $L_\infty$  norm directly. Based on this idea, the problems of robust peak-to-peak gain minimization and controller synthesis are reduced to solving the feasibility problems of a set of matrix inequalities. A numerical example is used to demonstrate the feasibility and effectiveness of the presented method.

Key words [Uncertain linear discrete system](#) [peak-to-peak gain](#) [robust control](#)

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通讯作者 嵇小辅 [jixf@ipc.zju.edu.cn](mailto:jixf@ipc.zju.edu.cn)

作者个人主页 嵇小辅; 苏宏业; 褚健

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