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O.G. Andrianova, A.A. Belov

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Robust performance analysis of linear discrete-time systems in presence of colored noise[☆]

O.G. Andrianova[a,c,*], A.A. Belov[b,a]

[a] *V. A. Trapeznikov Institute of Control Sciences of Russian Academy of Sciences, Moscow 117997, Russia*
[b] *ITMO University, St. Petersburg 197101, Russia*
[c] *HSE Tikhonov Moscow Institute of Electronics and Mathematics, Moscow 123458, Russia*

Abstract

In this paper, linear discrete-time time-invariant (LDTI) normal and descriptor systems with norm-bounded parametric uncertainties are under consideration. The input signal is supposed to be a "colored" noise with bounded known mean anisotropy level (spectral color). The conditions of anisotropic norm boundedness for such class of systems are derived. The algorithm is based on convex optimization technique. A numerical example is given.

Keywords: descriptor systems, uncertain linear systems, norm-bounded uncertainties, colored noise, stochastic systems.
2010 MSC: 47N10

1. Introduction

In recent years problems of robust control and performance analysis of uncertain systems affected by external disturbances have become one of the most popular research areas in modern control theory. Considerable attention is paid to problems of robust stabilization and robust performance analysis

*Corresponding author
Email addresses: andrianovaog@gmail.com (O.G. Andrianova), a.a.belov@inbox.ru (A.A. Belov)

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