

[2007-1295] Output-Feedback Control for a Class of Uncertain Nonlinear Systems with Linearly Unmeasured States Dependent Growth

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摘要

关键词

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Output-Feedback Control for a Class of Uncertain Nonlinear Systems with Linearly Unmeasured States Dependent Growth

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Abstract

This paper is devoted to the problem of global stabilization by output-feedback for a class of nonlinear systems with uncertain control coefficients, stable zero-dynamics and linearly unmeasured states dependent growth. By first introducing two kinds of appropriate state transformations, the original system is converted into the new system with deterministic virtual control coefficients and the separated zero-dynamics. Then, a suitable observer based on high-gain K-filters is constructed for the new system, and the backstepping design approach is successfully proposed to the output-feedback controller. It is shown that the global asymptotic stability of the closed-loop system can be guaranteed by the appropriate choice of the design parameters. A simulation example is also provided to show the correctness of the theoretical results and the effectiveness of the proposed approach.

Key words [Nonlinear systems](#) [uncertain control coefficient](#) [high-gain K-filters](#) [output-feedback](#) [unmeasured states dependent growth](#) [global asymptotic stability](#)

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