

## [2009-0765] Convergent Stabilization Conditions of Discrete-time 2-D T-S Fuzzy Systems via Improved Homogeneous Polynomial Techniques

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摘要

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## [2009-0765] Convergent Stabilization Conditions of Discrete-time 2-D T-S Fuzzy Systems via Improved Homogeneous Polynomial Techniques

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Abstract

This paper is concerned with the problem of stabilization of the Roesser type discrete-time 2-D T-S fuzzy system via some improved homogeneous polynomial techniques. Firstly, a novel kind of non-quadratic control scheme is proposed to stabilize the underlying 2-D T-S fuzzy system, thus less conservative stabilization conditions are attained by applying two kinds of improved homogeneous polynomial techniques. As the degree of the homogeneous polynomially parameter-dependent matrix increases, these attained sufficient conditions may be asymptotically necessary in a convergent sense. Secondly, for the sake of further reducing conservatism, a new right-hand-side slack variables introducing approach which suits the homogenous polynomial setting is also proposed. Finally, a numerical example is provided to illustrate the effectiveness of the proposed methods

Key words

[Roesser model](#) [2-D discrete-time systems](#) [linear matrix inequalities\(LMIs\)](#) [non-quadratic stabilization](#) [homogeneous polynomial matrix](#)

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