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**Attitude observer-based robust control for a twin rotor system.** (English) Zbl 1278.93283  
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Summary: In this paper, an angular tracking control based on adaptive super twisting algorithm (ASTA) for a Twin Rotor System is presented. With the aim of implementing the ASTA control and taking into consideration the difficulties of measuring some of its states, a Nonlinear Extended State Observer (NESO) is employed to estimate the vector state and furthermore unmeasured dynamics. This scheme increases robustness against unmodeled dynamics and external disturbance, reducing modeling difficulties due to the fact that it is not necessary to know all the parameters of the system. Furthermore, an analysis of stability is provided, where sufficient conditions are given in order to guarantee the stability of the closed-loop system. Experimental results demonstrate the feasibility of the control scheme and illustrate its performance under external disturbance.

**MSC:**

93E12 Identification in stochastic control theory

Cited in 2 Documents

**Keywords:**

robust adaptive control; extended state observer; flight control

**Full Text:** [Link](#)

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