

**Diong, B. M.; Medanic, J. V.**

**Simplex-type variable structure controllers for systems with non-matching disturbances and uncertainties.** (English) [Zbl 0882.93010](#)

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A class of linear multivariable control systems with disturbances and uncertainties (that do not satisfy the matching conditions, i.e. they do not lie in the range space of the control input) is considered. An approach for solving the (robust) disturbance rejection problem is proposed. It consists of applying a combination of  $H_\infty$ -control (to select the sliding hyperplane orientation so as to guarantee robust stability and disturbance attenuation for the system in sliding mode) and the so-called simplex control technique (so as to force the state trajectory to "lock on" to the sliding hypersurface). A two-link flexible joint robot arm example is also presented.

Reviewer: [M.I.Krastanov \(Sofia\)](#)

**MSC:**

[93B12](#) Variable structure systems

[93B36](#)  $H^\infty$ -control

[93D21](#) Adaptive or robust stabilization

Cited in **5** Documents

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