

Variable Measurement Step in 2-Sliding Control.

Arie Levant

Abstract: Sliding mode is used in order to retain a dynamic system accurately at a given constraint and features theoretically-infinite-frequency switching. Standard sliding modes are known to feature finite time convergence, precise keeping of the constraint and robustness with respect to internal and external disturbances. Having generalized the notion of sliding mode, higher order sliding modes preserve or generalize its main properties, improve its precision with discrete measurements and remove the chattering effect. However, in their standard form, most of higher order sliding controllers are sensitive to measurement errors. A special measurement step feedback is introduced in the present paper, which solves that problem without loss of precision. The approach is demonstrated on a so-called twisting algorithm. Its asymptotic properties are studied in the presence of vanishing measurement errors. A model illustration and simulation results are presented.

Keywords:

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