

Dynamics in high-gain adaptive control

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Abstract

A simple proportional output feedback controller with adaptive high-gain parameter is introduced. The controller achieves prescribed practical tracking of bounded reference signals with bounded derivative if applied to a class of controlled dynamical systems modelled by functional differential equations. This class encompasses systems with hysteresis, delays and distribution effects. Limitations of the adaptive controller are shown when a so called σ -modification is incorporated. In this case we can already show for two dimensional linear systems a rich scenario of bifurcation phenomena.