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On the Global Stabilization of Nonlinear Systems via Switching Manifolds

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Abstract: The global stabilization of nonlinear systems is investigated by using switching surfaces. The nonlinear system is forced to a lower order switching manifold, which is designed to be stable by construction. Thus, the stability of the reduced-order system is guaranteed and parameter selection for the switching surface is avoided. The method is extended to a class of uncertain nonlinear systems and exemplified with some fictitious dynamic models.

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