

## Passivity Based Stabilization of Non-Minimum Phase Non-linear Systems

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*Abstract:* A cascade scheme for passivity-based stabilization of a wide class of nonlinear systems is proposed in this paper. Starting from the definitions and basic concepts of passivity-based stabilization via feedback (which are applicable to minimum phase nonlinear systems expressed in their normal forms) a cascade stabilization scheme is proposed for minimum and non-minimum phase nonlinear systems where the constraint of stable zero dynamics imposed by previous stabilization approaches is abandoned. Simulation results of the proposed algorithm are presented to demonstrate its performance.

*Keywords:* nonlinear systems; stabilization; passivity; state feedback;

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