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Einladung zum Vortrag

von Herrn Dr. Jochen Schmid (Universität Würzburg) zum Thema

Stabilization of port-Hamiltonian systems
by nonlinear boundary control
in the presence of disturbances

am Donnerstag, 07.02.2018, um 14:00 Uhr, in Raum (IM) SR 040

Abstract

In this talk, we are concerned with the stabilization of linear port-Hamiltonian systems on an interval (a, b) (for instance vibrating strings or beams) in the presence of external disturbances. In order to achieve stabilization we couple the system to a nonlinear dynamic boundary controller whose output is allowed to be corrupted by an external disturbance before it is fed back into the system. We first establish the well-posedness of the resulting closed-loop system and then present two input-to-state stability results for the closed-loop system (with input being the external disturbance): for a special class of nonlinear controllers, we obtain uniform input-to-state stability and for a more general class of nonlinear controllers, we obtain weak input-to-stability (in fact, even convergence of all solutions to zero).

Joint work with H. Zwart.