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Title:

Regulation by integral controller for quasi-linear hyperbolic PDE

Abstract:

This talk deals with the control and regulation by integral controllers for the nonlinear systems governed by scalar quasi-linear hyperbolic partial differential equations. Both the control input and the measured output are located on the boundary. The closed-loop stabilization of the linearized model with the designed integral controller is proved first by using the method of spectral analysis and then by the Lyapunov direct method. Based on the elaborated Lyapunov function we prove local exponential stability of the nonlinear closed-loop system with the same controller. The output regulation to the set-point with zero static error by the integral controller is shown upon the nonlinear system.