ALPEN-ADRIA UNIVERSITÄT KLAGENFURT

INVITATION TO THE DOCTORAL SEMINAR

Control and stabilization of nonlinear systems with oscillatory dynamics

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Chaired by Christian Pötzsche | Department of Mathematics

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ABSTRACT

This talk addresses the issue of asymptotic behavior of solutions to nonlinear control systems governed by ordinary and partial differential equations. It is assumed that the class of systems under consideration satisfies controllability conditions with unconstrained inputs. In the finite-dimensional case, we propose a family of fast oscillating feedback controls that stabilize the equilibrium with exponential decay rate. The idea of proof is based on an extension of Lyapunov's direct method and the Chen-Fliess series. A characterization of attractors of infinite-dimensional closed-loop systems is obtained by the invariance principle. These results are applied for the stabilization of nonholonomic systems and mathematical models of controlled flexible structures.

We hope to see you there!