



TECHNISCHE UNIVERSITÄT
ILMENAU

Institut für Automatisierungs- und
Systemtechnik

Prof. Dr.-Ing. Johann Reger
Fachgebiet Regelungstechnik

On tracking control without over- and undershoot in step response

Kolloquium

Dr. Robert Schmid

University of Melbourne

Montag,

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15:00 Uhr, Zusebau Z 2086

Zusammenfassung

Tracking control problems are as old as control theory, and have applications in many areas of engineering. Our research involves developing new techniques for the improvement of the transient performance in tracking control. In our early work we considered linear time-invariant plant in state-space form and designed a state feedback control law to achieve tracking of a step input without overshoot. The method is applicable to continuous and discrete-time systems, SISO and MIMO systems, square and non-square systems, and minimum and non-minimum phase systems.

Recent extensions of the work include control laws to avoid undershoot in the step response, and the design of dynamic measurement feedback controllers to achieve non-overshooting output regulation. Current work includes extending the design method to consensus tracking control problems for multi-agent systems. Application problems include improving control methodologies for reducing tower load fatigue in wind turbines.

Curriculum Vitae

Dr. Robert Schmid completed his PhD with the Department of Electrical and Electronic Engineering at the University of Melbourne in 2003. His research interests lie in the area of eigenstructure assignment for improving control systems performance. He has co-authored 50 journal and conference publications in control systems theory, and has been on the editorial board of Systems & Control Letters since 2007.