数学与系统科学研究院学术报告

报告题目：Nonlinear Control of Dynamic Networks: The Cyclic-Small-Gain Approach

报 告 人: Tengfei Liu, Northeastern University

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摘要： The rapid development of computing, communications and sensing technologies have been enabling new potential applications of advanced control to networked systems like smart power grids, biological processes, distributed computing networks, transportation systems and robotic networks. Significant problems are to integrally deal with the fundamental system characteristics such as nonlinearity, dimensionality, uncertainty and information constraints, and diverse kinds of networked behaviors, which may arise from quantization, data-sampling and impulsive events.  This talk introduces new cyclic-small-gain tools to address the nonlinear control problems with dynamic networks. Specific topics include the cyclic-small-gain theorem, nonlinear control under sensor noise, quantized nonlinear control, distributed nonlinear control and their applications to multi-vehicle systems.

报告人简介:

Tengfei Liu is currently a Professor of State Key Laboratory of Synthetical Automation for Process Industries, Northeastern University, Shenyang. His research Interests include stability theory, adaptive and robust control of nonlinear systems, distributed control, quantized control and their applications inmechanical systems, process industries and transportation systems.
His education experience: 2008–2011 Ph.D. in Engineering (Systems and Control)The Australian National University (ANU), Canberra, Australia 2005–2007 Master of Engineering in Control Theory and Control Engineering South China University of Technology (SCUT), Guangzhou, China
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His professional experience 2012–2013 Polytechnic Institute of New York University Visiting Assistant Professor 2011–2012 Polytechnic Institute of New York University Postdoctoral Researcher.

He got 2011 “Guan Zhao-Zhi” Best Paper Award from the 30th Chinese Control Conference and ANU Vice-Chancellor’s HDR Travel Grant for attending Asian Control Conference 2009.