

学术报告会

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地点: 电院群楼2-410会议室

Distributed Control of Positive Systems

Prof. Anders Rantzer

Lund University, Sweden



Abstract:

A system is called positive (or monotone) if all step responses are monotone. Such systems have many applications in science and technology. In particular, they appear naturally in economic theory and in the study of power transmission networks. For positive systems, we show that distributed H-infinity optimal controllers can be computed using linear programming, with a complexity that scales linearly with the number of states and interconnections. Hence two fundamental advantages are achieved compared to classical methods for multivariable control: Distributed implementations and scalable computations. Applications and open problems will be discussed.

Biography:

Prof. Anders Rantzer received a Ph.D. degree in optimization and systems theory in 1991 from the Royal Institute of Technology (KTH), Stockholm, Sweden. After postdoctoral positions at KTH and at IMA, University of Minnesota, he joined the Department of Automatic Control in Lund 1999. The academic year of 2004/05 he was visiting associate faculty member at Caltech. Since 2008 he coordinates the Linnaeus Center LCCC at Lund University. He has been serving as associate editor of IEEE Transactions on Automatic Control and several other journals. He is a winner of the SIAM Student Paper Award for the best article in IEE Proceedings-Control Theory & Applications during 2006. He is a Fellow of IEEE and a member of the Royal Swedish Academy of Engineering Sciences. His research interests are in modeling, analysis and synthesis of control systems, with particular attention to uncertainty, optimization and distributed control.