学术报告会

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地点：电院群楼2-410会议室

Adaptive control of nonlinear uncertain discrete-time systems

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Abstract:

This talk is concerned with the adaptive control of nonlinear uncertain systems in discrete time. An interesting phenomenon occurs when one attempts to control systems with output nonlinearity growing faster than linearity, where similarities between the continuous- and discrete-time cases of adaptive control no longer exist. It is generally known that a large class of continuous-time nonlinear parametric systems, regardless of how fast the growth rate is, can be globally stabilized by the nonlinear damping or back-stepping approach in adaptive control. However, fundamental difficulties arise for the discrete-time case. These difficulties are caused by the inherent limitations of the feedback principle in dealing with uncertainties, which means that discrete-time systems with uncertainties beyond the feedback capability cannot be stabilized by any feedback control law, no matter how hard one may try.

Biography:

李婵颖，中国科学院数学与系统科学研究院副研究员。2002 年毕业于四川大学数学系，并分别于 2005 年和 2008 年获得中国科学院数学与系统科学研究院硕士及博士学位。曾先后于美国韦恩州立大学及香港大学从事博士后研究，并赴美国纽约大学理工学院和加拿大滑铁卢大学进行学术访问。主要研究方向包括鲁棒控制及自适应控制理论，随机系统及采样系统等。获国家自然科学基金优秀青年基金及第 33 届中国控制会议最佳论文奖关肇直奖。