数学与系统科学研究院学术报告

报告题目： Non-asymptotic confidence sets for the parameters of dynamical systems: The SPS approach

报 告 人：Erik Weyer(The University of Melbourne, Australia)

时间地点：5月9日 上午10:00-11:00, Room 712, Siyuan Building

摘要：

In this seminar we consider the problem of constructing confidence sets for the parameters of models of dynamical systems. We present the main ideas behind an approach called “Sign-perturbed Sums” (SPS). SPS constructs confidence regions from a finite number of data points, and the confidence regions have the property that they contain the true system parameters with guaranteed exact probability. The assumptions on the noise affecting the system are weak, essentially only requiring the noise to be independent and symmetrically distributed. The method is illustrated on simulation examples.

报告人简介及联系方式：

Erik Weyer received the Siv. Ing. degree in 1988 and the Ph.D. in 1993, both from the Norwegian Institute of Technology, Trondheim, Norway. From 1994 to 1996 he was a Research Fellow at the University of Queensland, and since 1997 he has been with the Department of Electrical and Electronic Engineering, the University of Melbourne, where he is currently an Associate Professor. He has held visiting positions at the University of Brescia, Italy, the Technical University of Vienna, Austria, and Politecnico di Milano, Italy. From 2010 to 2012 he was an associate editor of IEEE Transactions of Automatic control. He is a member of IFAC Technical Committee on Modeling, Identification and Signal Processing, IFAC Technical Committee on Fault Detection, Supervision and Safety of Technological Processes, IFAC Technical Committee on Modeling and Control of Environmental Systems and a founding member of IEEE Technical Committee on System Identification and Adaptive Control. His research interests are in the areas of system identification and control, with particular emphasis on finite sample properties of system identification methods, and modeling and control of irrigation channels and rivers.