

学术报告会

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Sliding Mode Observation and Identification of the Systems with Bounded Unknown Inputs

Leonid Fridman



Department of Control Engineering and Robotics, Engineering Faculty
National Autonomous University of Mexico (UNAM), Mexico
<http://verona.fi-p.unam.mx/~lfridman/>

Abstract:

The concepts of strong observability and detectability for the system with unknown inputs(UI) is discussed. The need of differentiation for state estimation for the systems with UI with relative degree more than two is explained. The main concept of sliding mode control is revisited. The sliding mode differentiators and higher order sliding mode differentiators (HOSMD) are introduced. Robust exact HOSMD based observers are designed for state estimation and unknown inputs identification.

Biography:

Leonid M. Fridman received a Ph.D. degree in applied mathematics from the Institute of Control Science, Moscow, Russia, in 1988, and a Dr. Sc. degree in control science from Moscow State University of Mathematics and Electronics, Moscow, Russia, in 1998. From 1976 to 1999, he was with the Department of Mathematics, Samara State Architecture and Civil Engineering University. In 2002, he joined the Department of Control Engineering and Robotics, Division of Electrical Engineering of Engineering Faculty at National Autonomous University of Mexico (UNAM), Mexico. He was working as an invited professor in 20 universities and research laboratories of Argentina, Australia, Austria, France, China, Germany, Israel, Italy and Spain. He is International Chair of INRIA(France) for 2017-2021.

His research interests are Variable Structure Systems. He is currently a Chair of TC on Variable Structure Systems and Sliding mode control of IEEE Control Systems Society. He is an author and editor of ten books and fifteen special issues devoted to the sliding mode control. He is a winner of Scopus prize for the best cited Mexican Scientists in Mathematics and Engineering 2010.