

SMU Department of Mechanical Engineering

SEMINAR

'Synchronization and Coordination of Multi-Robot Networks'

DR. MARK W. SPONG

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Friday, February 19, 2010

3:00 – 4:00 p.m.

Huitt-Zollars Pavillion

Abstract: In this talk we will address the problem of synchronization and coordination of multi-robot networks from the perspective of passivity-based control. Such systems arise in a number of emerging application areas, such as sensor networks, autonomous flying and swimming vehicles, networked communication and control systems, and computer networks. We will discuss how synchronization naturally arises in both natural and engineered systems and how feedback in such systems leads to interesting emergent behaviors. Examples will be given in bilateral teleoperation and in attitude synchronization of multiple robots.

Bio: Mark W. Spong is currently Dean of the Erik Jonsson School of Engineering and Computer Science and holder of the Lars Magnus Ericsson Chair and the Excellence in Education Chair at the University of Texas at Dallas. Prior to 2008 he was at the University of Illinois at Urbana-Champaign. Dr. Spong's main interests are in nonlinear control theory and robotics. He has published more than 250 papers and 4 books in the area. Dr. Spong is Past President of the IEEE Control Systems Society and Past Editor-in-Chief of the IEEE Transactions on Control Systems Technology. His recent awards include the 2007 IROS Fumio Harashima Award for Innovative Technologies, the Senior Scientist Research Award from the Alexander von Humboldt Foundation, the John R. Ragazzini Award and O. Hugo Schuck Award from the American Automatic Control Council, and the IEEE Third Millennium Medal. Dr. Spong is also a Fellow of the IEEE and President of Mechatronic Systems, Inc., a company that he founded in 1996.