

## **Photo**



## **Title of talk**

*Operator based nonlinear control system design and its application on wireless power transfer system*

## **Abstract**

*In order to address nonlinear behaviors in real application, in this talk, operator based models are introduced, which describe the nonlinear dynamics based on fundamental physical and chemical rules. As for the compensation on the dynamics, based on the concept of Lipschitz operator and the operator based robust right coprime factorization condition, robust nonlinear control design schemes realized are proposed to guarantee the robust stability and desired performance of the above nonlinear dynamics. For demonstrating the effectiveness, current experimental results are shown by applying the above-mentioned control design to wireless power transfer system.*

## **Bio**

Prof. Mingcong Deng is a Professor of Tokyo University of Agriculture and Technology, Japan. He received his PhD in Systems Science from Kumamoto University, Japan, in 1997. From 1997 to 2000, he was with Kumamoto University as an Assistant Professor. From 2000 to 2001, he was with University of Exeter, UK, and then spent one year at the NTT Communication Science Laboratories. Since the end of 2002 to September of 2010, he worked at Okayama University, where he was an Assistant Professor and then an Associate Professor.

Prof. Deng is a member of SICE, ISCIE, IEICE, JSME, IEEJ and the IEEE(SM). He specializes in three complementary areas: Operator based nonlinear fault detection and fault tolerant control system design; System design on thermoelectric conversion elements; Applications on smart material actuators. Prof. Deng has over 450

publications including 150 journal papers, 15 books (or chapters), in peer reviewed journals including IEEE Transactions, IEEE Press (for books) and other top tier outlets. He serves as a chief editor for International Journal of Advanced Mechatronic Systems, The Global Journal of Technology and Optimization, and associate editors of 6 international journals, including with IEEE journal. Prof. Deng is a co-chair of agricultural robotics and automation technical committee, IEEE Robotics and Automation Society; also a chair of the environmental sensing, networking, and decision making technical committee, IEEE SMC Society. He was the recipient of 2014 Meritorious Services Award of IEEE SMC Society.