



# LHD International Lecture



## **Title: Probing High-Temperature Chemical Kinetics Using Laser Absorption Spectroscopy**

**Lecturer:** Professor Wei REN

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The Chinese University of Hong Kong

**Venue:** Room 312, Building 1, Institute of Mechanics, CAS

**Time:** 9:30am, February 28, 2018

### **Abstract:**

Laser absorption spectroscopy is widely used in many areas such as combustion research, environmental monitoring, and industrial process control, due to its species-specific, non-intrusive and quantitative measurements. In combustion systems and petroleum industries, optical sensors are installed to monitor key species in processes to understand combustion fundamentals or to ensure safety and efficiency. This talk will focus on our recent combustion chemical kinetics studies using laser spectroscopy methods. Particularly, reaction rate constant measurements in shock tubes, temperature and species measurements in laminar and jet flames, and novel laser spectroscopy tools will be introduced. Combined with quantum chemistry calculations, laser spectroscopy provides opportunities to probe high-temperature chemical kinetics in a more accurate and efficient way.

### **Biography:**

Dr. Wei Ren received his B.S. and M.S. degree from Tsinghua University in 2006 and 2008, respectively. He received his Ph.D. degree in Mechanical Engineering under the advisory of Dr. Ronald K. Hanson at Stanford University in 2013. After one year of postdoctoral research with Dr. Frank K. Tittel in the Department of Electrical and Computer Engineering at Rice University, Dr. Ren joined CUHK as an assistant professor in the Department of Mechanical and Automation Engineering starting in August, 2014. His current research focuses on the development of new technologies and the understanding of basic principles in the areas of combustion and propulsion, alternative fuels, laser diagnostics and gas sensing.

