

Kolloquium

Am Montag, den 01. August 2016, um 14:00 Uhr hält

Prof. Yi-Kuen Lee
Hong Kong University of Science and Technology

einen Vortrag mit dem Titel

Bio-MEMS/NEMS and Microfluidics at HKUST

Der Vortrag findet in A1-3-330 statt.

Abstract:

Bio-MEMS/NEMS and microfluidics have been rapidly developing in new frontiers of medical diagnostics, optofluidics, nanofluidics and biotechnology. In the past decades, the applications of these devices gradually change from basic life science research to biohazard detection systems, in-vitro medical diagnostics systems & implantable medical devices for hospital and home care and pharmaceutical industry. In this presentation, we will also discuss several representative and unique microfluidics and bio-MEMS/NEMS devices developed at HKUST including basic microfluidics research and their application in early cancer diagnostics, micro/nano electroporation chips, the discovery and screening of traditional Chinese medicine using closed-loop feedback control and micro thermal heat transfer and flow sensors. In addition, we also developed the corresponding theoretical and numerical modeling and simulations (Biased Reptation Model with Electrosmosis for Micro/nanoelectrophoresis of large DNA molecules, micro thermal flow sensors using CMOS MEMS technology, electromechanical model for single-cell electroporation) to facilitate the optimization of devices' design and performance.



Prof. Dr. Yi-Kuen Lee received his BS degree with honor in Bio-Industrial Mechatronics Engineering Department, National Taiwan University (NTU) in 1992. He received his MS degree under the supervision of late Prof Yih-Hsing Pao (member of US NAE and Academia Sinica) in the Institute of Applied Mechanics, NTU in 1995. After finishing two-year military service, he went to US and obtained Ph.D. degree in Mechanical Engineering with Major in MEMS under the guidance of Prof Chih-Ming Ho (member of US NAE and Academia Sinica) at UCLA in 2001. He was an Assistant Professor from 2001 to 2007 at HKUST. He received substantiation and was promoted to Associate Professor in 2007.

He was a Visiting Associate at Caltech in 2011. He has published two book chapters, more than 120 refereed journal and international conference papers. His current research topics include microfluidics for enumeration of Circulation Tumor Cells (CTCs) for cancer diagnostics, microchips for DNA transfection, micro/nano heat transfer, micro/nano electrophoresis for large DNA molecules, MEMS sensors for environmental monitoring and energy-efficiency building. He is the Associate Editor, HKIE Transaction. He is the President of Hong Kong Society of Theoretical and Applied Mechanics since 2014. He is the co-founder of the annual Nano/Micro Engineered and Molecular Systems (IEEE NEMS) conferences since 2006; the co-founder of International Contest of Application in Nano-micro Technology (ICAN) Association; Technical Program Committee (TPC) member of IEEE MEMS 2007, Kobe, Japan; TPC member of IEEE Nano 2007; TPC member of APCOT 2008, 2010, 2012, 2014; TPC member of IEEE NEMS 2009, 2010, 2011 & 2012, IEEE Transducers 2009 & 2011, 2013, 2015. He was the Chair for the 5th International Workshop on Innovation and Commercialization of Micro & Nano Technologies (ICMAN 2011), Shenzhen, 5-8 Nov 2011. He will co-chair APCOT (Asia-Pacific Conference of Transducers and Micro-Nano Technology) 2018 in Hong Kong.

Eingeladen von: Prof. Dr. Sergej Fatikow

Weitere Kolloquiumstermine sind im WWW abrufbar.