

The 51st JUACEP Seminar

第 51 回名古屋大学日米加協働教育プログラムセミナー

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Lecture room 221 (2F, Eng.Bldg. II)

Miniaturized Gas Chromatograph Technology

Prof. Katsuo Kurabayashi

**Department of Mechanical Engineering
Department of Electrical Engineering
and Computer Science
University of Michigan, U.S.A.**



Abstract

Gas Chromatography (GC) is a powerful technique used in analytical chemistry for separating and detecting various vaporized compounds, such as volatile organic compounds (VOCs). Our modern society has seen a growing concern about human exposure to VOCs in the air that may cause potential health risks. The on-site continuous monitoring and point-of-care detection of these compounds enables accurate environmental health risk assessment and the rapid, non-invasive, early-stage screening of human diseases. However, conventional thermal modulator devices are resource-intensive, occupy a large instrument space, and /or demand a large amount of power for their operation. This talk describes our research efforts to develop key microelectromechanical systems (MEMS) devices necessary for realizing miniaturized low-power, low-cost, robust GC systems.

Biography

Katsuo Kurabayashi is Professor of Mechanical Engineering and Electrical Engineering and Computer Science at the University of Michigan, Ann Arbor. He received his BS in Precision Engineering from the University of Tokyo in 1992, and his MS and PhD in Materials Science and Engineering from Stanford University, CA, in 1994 and 1998, respectively. His current research focuses on optofluidics, nanoplasmonic and biomolecular biosensing, and BioMEMS/microsystems for immunology, clinical diagnosis, and analytical chemistry. He received the 2001 NSF Early Faculty Career Development (CAREER) Award, and the Robert Caddell Memorial Award in 2005, the Pi Tau Sigma Outstanding Professor Award in 2007, the Mechanical Engineering Outstanding Achievement Award in 2013 from the University of Michigan, and the Ted Kennedy Family Team Excellence Award in 2015 from the College of Engineering at the University of Michigan.

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