ELECTRICAL & COMPUTER ENGINEERING BIO-SEMINAR Fall 2016

Dwight Look College of ENGINEERING TEXAS A&M UNIVERSITY

When: **Friday 15:00 – 16:00**
Where: **HRBB 204**
Coordinator: **Xiaoning Qian** (xqian@ece.tamu.edu)

Speaker: **Prof. Arum Han**

Professor
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Title: **High-Throughput Microfluidics: *An Example in Accelerating Next-Generation Biofuel Development***

Date: **09-23-2016**

Abstract: Microfluidics, a technology that can accurately control extremely small amount of liquid samples, together with various micro/nano fabrication technologies, enable the concept of lab-on-a-chip systems. Our lab is interested in solving grand challenge problems in the broad area of health and energy through the use of micro/nano systems technology. The microfluidic lab-on-a-chip technologies that we develop allow fully automated high-throughput single-cell resolution assays and systems that can mimic physiological conditions of human organs, and are capable of accelerating research and development in diverse areas of life sciences and biotechnology. In this presentation I will introduce one such example where the microfluidic system that we develop allow high-throughput analysis of micro-organisms that have the potential to enable next-generation transportation fuel production. The high-throughput microfluidic system we developed is currently being used to identify and define metabolic processes and genetic constraints that significantly enhance oil production and growth of microalgae will be introduced. We believe that microfluidic and lab-on-a-chip platforms can dramatically accelerate research and development in the broad area of life science disciplines.

Biography: Dr. Arum Han is a Professor in the Department of Electrical and Computer Engineering and also in the Department of Biomedical Engineering at Texas A&M University (USA). He joined Texas A&M University in 2005 as an Assistant Professor. He is also a faculty of Texas A&M Health Science Center and the Texas A&M Institute for Neuroscience. He received his Ph. D in electrical engineering from the Georgia Institute of Technology in 2005, his M.S. from the University of Cincinnati in 2000, and his B.S. from the Seoul National University in 1997, all in electrical engineering.

His research interests are in solving grand challenge problems in the broad areas of health and energy through the use of micro/nano systems technologies. He has co-authored more than 80 peer-reviewed publications and has received funding from the Bill and Melinda Gates Foundation, National Institutes of Health (NIH), National Science Foundation (NSF), Defense Threat Reduction Agency (DTRA), United States Department of Agriculture (USDA), U.S. Army Corp of Engineers, Qatar National Research Foundation (QNRF), and several other international sponsors and private companies. He serves as the editorial board member of the journal PLoS ONE and as an Associate Editor of the journal Biomedical Microdevices. He is a Texas A&M Engineering Experiment Station (TEES) Fellow and Eugene Webb Faculty Fellow of Texas A&M University. His awards include: the Engineering Genesis Award for Multidisciplinary Research, the E. D. Brockett Professorship Award, and the Dean of Engineering Excellence Award.