Bio-inspired N/MEMS for Multi-Modal Cell Characterization

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Abstract: This talk presents bio-inspired N/MEMS (Nano/Micro Electro Mechanical Systems) for cell characterization and control based on multimodal cell properties. Special features and performance of the bio-inspired cell chips are discussed based on the multimodal cell properties, including mechanical, thermofluidic, and/or electrical properties. Also addressed are the potentials of the bio-inspired N/MEMS for applications to label-free high-throughput biomolecule analysis systems; thus making a technological impact on biomedical research, diagnosis and treatment.

Brief Biography: Young-Ho Cho is the Professor of Bio and Brain Engineering Department and Mechanical Engineering Department as well as the Director of Cell Bench Research Center at KAIST. Professor Cho’s research interests are focused on the bio-inspired nano/micro electro mechanical systems (N/MEMS), where biologically-inspired sensors and actuators are integrated with neural circuitry for the high-performance, low-power, low-cost management of micro/nano-scaled materials and energy. Previously he received a Ph.D. degree (1990) from the University of California at Berkeley, where he worked as a Post-Graduate Researcher (1987-1990) and a Post-Doctoral Research Associate (1991) of the Berkeley Sensor and Actuator Center. In Korea, he served as the Founding Chair of MEMS Division in Korean Society of Mechanical Engineers, the Chair of Steering Committee in Korea National MEMS Programs, and the Member of National Nanotechnology Committee. In 2008, Prof. Cho was decorated with the Science and Technology Medal of Honor for his research and educational contribution to Nano-Bio-Information Technology Convergence in Korea. Dr. Cho also served for international technical society as the General Co-Chair of IEEE MEMS Conference 2003 and the Chairman of World Micromachine Summit 2008.