Nanofabricated Multiplex Assay Biochip for Simple, Fast, and Accurate Blood Tests in the Microfluidic Platform

Eon Soo Lee, Ph.D.

Associate Professor with Tenure

New Jersey Institute of Technology, USA

Dr. Eon Soo Lee is an Associate Professor with Tenure in Mechanical and Industrial Engineering Department and the Principal Investigator of Advanced Energy Systems and Microdevices Laboratory at the New Jersey Institute of Technology (NJIT) since 2013. He has received his Ph.D. (2007) and MS at Stanford University, and his BS at Yonsei University, Seoul, Korea, all in Mechanical Engineering. Before joining NJIT, he worked at Samsung and Hyundai as an engineer, Senior Engineer, and Principal Engineer for many years, and established extensive researches on energy materials and systems, and microscale multiphase flow dynamics and thermal transport in both academia and industries including Stanford University, Samsung, and Hyundai.

He is an elected Senior Member of the National Academy of Inventors (NAI) since 2020, and was enlisted as Vanguard Leaders in Higher Education in New Jersey by NJBIZ in 2018. He has served as an Associate Editor of Journal of Translational Engineering in Health and Medicine (JTEHM) and a Guest Editor for numerous journals. Dr. Lee is also the Founder of ABONICS, INC which was spun off from NJIT in 2018 for the development of the nano biochip technology for disease detection, diagnosis and monitoring. The innovative nano biochip technologies pioneered by Dr. Lee simultaneously detect the multiple tumor biomarkers using multi-layered nano-electrode structures with on-chip plasma self-separation mechanism in a single microfluidic channel for the rapid and accurate sensitivity and specificity from the finger prick of blood. Based on his extensive research findings, Dr. Lee has more than 100 scientific publications and more than 30 US and Korea patent awards.

Dr. Lee's researches have established sustainable supports and collaborations with the leading US institutions including Brookhaven National Laboratory – Center for Functional Nanomaterials, Princeton University – Princeton Institute for Science and Technology of Materials (PRISM), Weill Cornell Medical School, John Theurer Cancer Center at Hackensack University Medical Center (HUMC), and Montclair State University – Material Characterization Laboratory.