

SEMINAR ANNOUNCEMENT

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
COLLEGE OF DESIGN AND ENGINEERING
Website: <https://cde.nus.edu.sg/ece>

Area: Microelectronic Technologies & Devices

Host: Assoc Prof Vincent C. Lee

Jointly Organized By:
Center for Intelligent Sensors and MEMS (CISM) and
ECE Department, NUS

TOPIC	:	Micro/Nano-Engineered Sensors for Environmental, Human-Machine Interface, Healthcare, and Medical Monitoring Applications
SPEAKER	:	Prof. Inkyu Park KAIST Endowed Chair Professor & Vice Head, Department of Mechanical Engineering Director, Micro and Nano Transducers (MINT) Laboratory Korea Advanced Institute of Science and Technology (KAIST)
DATE	:	Thursday, 16 June 2022
TIME	:	4.30PM to 5.30PM
VENUE / WEBINAR	:	E5-03-20 SEMINAR ROOM Alternatively, Join Zoom Meeting https://nus-sg.zoom.us/j/84784185928?pwd=YTNtWk90a2FDSVdlaDhJQU8vT1pmQT09 Meeting ID: 847 8418 5928 Passcode: 814453

ABSTRACT

The importance of smart sensors towards convenient and safe life is rapidly increasing in the era of internet of things (IoT) and industry 4.0. Especially, micro and nanotechnologies are enabling new functionalities of ultracompact and low-power sensors that are essential for the IoT era. In this talk, I will present micro/nano-enabled sensors, which have been recently developed at our research group (MINT Lab, KAIST), for high performance environmental, human-machine interface, healthcare, and medical monitoring applications. Various topics on developed sensor materials, devices, and systems including the following topics will be discussed:

Triboelectric nanogenerators for self-powered wearable and ocean monitoring applications [1,2]
Artificial olfactory neuron and machine learning for an in-sensor neuromorphic nose [3]
3D micro/nanostructures for soft pressure sensing applications [4, 5]
Optically modulating micro/nano-structures for self-powered physical and chemical sensors [6, 7]
Battery-free, wireless soft sensors for continuous patient monitoring [8]
Thin film, integrated physical and chemical sensor arrays for biomedical needles [9, 10]

References (*: corresponding author)

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- [3] J.K. Han, I. Park*, et al., Advanced Science, online published (2022)
- [4] Y. Jung, I. Park*, et al., Advanced Functional Materials, online published (2022)
- [5] J. Choi, I. Park*, et al., Science Advances 7, eabj0694 (2021)
- [6] J. Gu, I. Park*, et al., Nano Energy 89, 106447 (2021)
- [7] J. Choi, I. Park*, et al., Nano Energy 74, 104749 (2020)
- [8] Y.S. Oh, I. Park*, et al., Nature Communications 12, 5008 (2021)
- [9] J. Park, I. Park*, et al., Advanced Science 8, 2100725 (2021)
- [10] J. Park, I. Park*, et al., Biosensors and Bioelectronics 148, 111822 (2020)

BIOGRAPHY



Prof. Inkyu Park received his B.S., M.S., and Ph.D. from KAIST (1998), UIUC (2003) and UC Berkeley (2007), respectively, all in mechanical engineering. He has been with the department of mechanical engineering at KAIST since 2009 as a faculty and is currently a full professor, vice department head, and KAIST Endowed Chair Professor. His research interests are nanofabrication, smart sensors for healthcare, environmental and biomedical monitoring, nanomaterial-based sensors and flexible & wearable electronics.

He has published more than 140 international journal articles (SCI indexed) and 200 international conference proceeding papers, and holds more than 40 registered domestic and international patents in the area of MEMS/NANO engineering. He is a recipient of IEEE NANO Best Paper Award (2010), HP Open Innovation Research Award (2009-2012), KAIST Prize for Academic Excellence (2021), KAIST Grand Prize for Technology Innovation Award (2019), KAIST Endowed Chair Professorship (2017), and Outstanding Researcher Award from the Micro and Nano Systems Society of Korea (2020, 2022).

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