



The Hong Kong University of Science & Technology
Department of Chemical & Biological Engineering

GUEST SEMINAR

Next-generation optoelectronics based on two-dimensional semiconductors

by

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Venue : Room 4472 (Lifts 25-26)
Host : Prof. Cindy Tang

Abstract

With the innovation of technologies that will impact our daily life such as the internet of things (IoT), wearable health care systems, digitally extended reality, and autonomous vehicles, the development of next-generation optoelectronic devices that possess advanced functionality and high performance has emerged as a substantial component for the evolution of future technology. Two-dimensional (2D) semiconductors have been extensively studied in the exploration of new phenomena and properties that are not seen in conventional bulk semiconductors, especially for optoelectronic applications such as light-emitting diodes (LEDs) and photodetectors. While the majority of existing technology relies on bulk crystalline semiconductors, unprecedented possibilities can be opened up for developing next-generation optoelectronics owing to the unique properties and the tuning capabilities that 2D semiconductors offer.

Biography



Hyungjin Kim is an Assistant Professor in the department of Materials Science and Engineering at Yonsei University. He earned his bachelor's and master's degree in Electrical and Computer Engineering at Seoul National University in 2014 and 2016, respectively, and Ph.D. in Electrical Engineering and Computer Sciences at University of California, Berkeley in 2021. Before joining Yonsei University, he also worked at Stanford University as a postdoctoral fellow conducting research on improving the properties of nanoscale semiconductors and solving the challenges in their next-generation device applications. During his Ph.D., he was a recipient of Samsung Scholarship and he has published first-authored papers in international peer-reviewed journals including Nature and Science. His research is at the multidisciplinary interface between materials science, electrical engineering, chemistry, and physics where he pursues energy-efficient nanoelectronics and optoelectronics.

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