

University of Houston - Biomedical Engineering Seminar
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**Optical Cavity-based Biosensor for
Point-of-care (POC) Medical Diagnostics**



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Abstract

The early detection of diseases is key to improve the survival rate of patients. However, the most widely-used and well-developed biosensors for medical diagnostics, such as enzyme-linked immunosorbent assay (ELISA), have limitations when used for the early detection of diseases because (1) they are often expensive, (2) they require large reagents and sample volumes, and (3) they are operated only by trained personnel due to their complex operation procedures. A point-of-care (POC) biosensor has emerged as a promising technology for this purpose. Our group has proposed an optical cavity-based biosensor as a POC biosensor for the early detection of diseases. In this presentation, I will discuss the details of our optical cavity-based biosensor design and characteristics, and also the most recent progresses toward demonstrating its sensitivity and capability.

Biosketch

Professor Seunghyun (Seung) Kim joined the Electrical and Computer Engineering Dept. at Baylor University in 2016. Dr. Kim oversees the Bio and Micro Devices Lab (BMDL) and a class 1,000 cleanroom in the state-of-the art research facility, the Baylor Research and Innovation Collaborative. His extensive research work in biosensors, integrated optics, photonic crystals, and micro/nano fabrication has led to 4 patents, 33 refereed journal papers, and 55 conference abstracts and proceedings. Dr. Kim received a NSF CAREER award in 2014, and Baylor's outstanding professor award for distinctive scholarship in 2018. He is a senior member of the Optical Society of America (OSA) and a member of the Institute of Electrical and Electronics Engineers (IEEE) and the Biomedical Engineering Society (BMES).