



## “Silicon photonics biosensors: Towards portable, point-of-care diagnostics”

**Date & Time:** Wednesday, August 24 | 1:00PM - 2:00PM PT

**Hybrid:** Life Sciences Centre Room 1003 (LSC3) & Zoom

**From the lab of:** Dr. Karen Cheung, *Professor*

Department of Electrical and Computer Engineering, UBC School of Biomedical Engineering, Centre for Blood Research

**Presented by:** Avineet Randhawa, Lauren Puumala, Yas Oloumi Yazdi, Sheri Jahan Chowdhury, Yifei Liu, Nicholas Tang, Dr. Samantha M. Grist, So Jung Kim and Luis G. Alde

As the COVID-19 pandemic has underscored, rapid point-of-care diagnostic tools can have wide-ranging implications to public health. Accurate, quantitative, low-cost, and portable tools are critical for widespread deployment of diagnostics. Silicon photonics represents a promising platform for biosensor-based diagnostics that leverages scalable semiconductor fabrication processes. Silicon photonic biosensors can generate rich, quantitative binding data similar to surface plasmon resonance, with the potential to integrate tens or even hundreds of photonic sensors alongside electronics on a semiconductor chip.

This seminar will summarize progress by our collaborative research team at UBC (Profs. Karen C. Cheung, Lukas Chrostowski, Sudip Shekhar), demonstrating a range of biosensor designs as well as their application to sensing of SARS-CoV-2 antigen and inflammatory mediators from an engineered tissue model. We will also discuss our microfluidics integration and data analysis methods, and describe our future work towards multiplexed detection of multiple biomarkers on a single chip. We will conclude by discussing the development of and progress towards first-in-kind fixed-wavelength resonator technologies that have the potential to operate as portable, point-of-care tools.