

# ECE Speaker Series

Department of Electrical  
and Computer Engineering

## Alexandre Brolo

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### Golden Times for Nanotechnology: Plasmonic Materials and their Applications

Nanostructured metallic surfaces support surface plasmon (SP) excitations. The resonance conditions depend on the optical properties at the metal-dielectric interface. For instance, the monitoring of the shift of the surface plasmon resonance (SPR) due to molecular adsorption events is a well-established approach in biosensing. The SPR condition also leads to an increase in the electric field at the surface which can be explored for enhanced spectroscopy schemes, such as surface-enhanced Raman scattering (SERS). In this presentation, I will provide an overview of the recent advances from our group on the fabrication of metallic nanostructures, and discuss some of their applications. These will include the use of gold nanostructures as nano-electrodes for spectroelectrochemistry, the integration of nanostructures in microfluidics and fiber optics for biomedical applications and the concept of plasmonic solar cells.

**March 20, 2017 at 10:00am in Egr Bldg 2, Rm W122**

*Alexandre G. Brolo is a professor of Chemistry at the University of Victoria in British Columbia, Canada. He obtained his M.Sc. from the University of Sao Paulo (Brazil) and his Ph.D. from the University of Waterloo (Canada). Dr. Brolo's research interest are of the fabrication of nanostructured metal surfaces; the investigation of their optical properties; and their application in analytical chemistry, energy conversion and photonics. He is well-known for his work on the development of new types of surface plasmon resonance (SPR) sensors and on the field of surface-enhanced spectroscopy, particularly on surface-enhanced Raman scattering (SERS).*



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