

A Spectroscopy Toolbox for Cancer Detection and Therapy Guidance

William Whelan
Department of Physics
University of Prince Edward Island

DATE: Friday, April 8, 2016

TIME: 3:00 PM

PLACE: C2045

ABSTRACT: Research in biophotonics is driven by the attractiveness of minimally invasive or non-invasive modalities for disease diagnosis and management that minimize trauma to non-targeted tissues and do not involve exposure to ionizing radiation. The translation of biophotonics technologies into clinical practice (bench to bedside) faces many challenges including the development of relevant biophysical models, the accurate detection and interpretation of optical signals/spectra, cost and procedural complexity. This seminar will focus on near infrared optical spectroscopy and optoacoustic imaging / spectroscopy for cancer diagnosis and treatment monitoring. One tool, point radiance spectroscopy, is a fiber-optic based technique that utilizes directional light to detect treatment-induced changes in tissue chromophore concentration and optical properties. A second tool, optoacoustic imaging, combines the high optical contrast possible with near-infrared optical imaging with the high resolution possible with ultrasound imaging. Both techniques take advantage of the structural, compositional and vascular changes that occur as cancers form and respond to therapy. Spectroscopic and imaging studies in ex vivo tissues and an in vivo rodent model of prostate adenocarcinoma will be presented and discussed.

Dr. Whelan is the invited speaker for the inaugural Dr. and Mrs. Satti Paddi and Parvati Reddy Memorial Lecture (public lecture April 7 at 7 pm in IIC-2001).

Refreshments will be provided before the talk in C2045.

ALL ARE WELCOME!