



Entin Lecture

Non-invasive analysis of medical diseases



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Monday, 19 September 2011, 6:00 P.M. Otto Maass Building, Room OM-10

Abstract:

Medicine in the 21st century is changing dramatically. With the advent of many new non-invasive and minimally invasive monitoring methods, rapid point-of-care diagnosis is becoming possible. Both optical spectroscopy and ultrasonography has been shown to have significant potential for in vivo assessment of biological status. This presentation will give an overview of recent advances in optical and ultrasound measurement for in vitro/in vivo analysis and focus on the principles behind clinical use of several new methods to understand metabolism.

As an example, a new method for characterizing lung function and edema for critical care patients will be presented. Likewise, applications of the approach to non-invasive measurement of brain trauma will be shown. Using chemometrics to obtain objective information from spatially resolved signal, quantifying underlying fluid layers through tissue will be shown to be possible. Likewise, a new minimally invasive approach using molecularly sensitive nanogels as ultrasound contrast agents will be presented for target analyte detection.

Results demonstrate how these simple techniques provide a valuable tool for monitoring of patient status in the emergency room and critical care.

The talk will be preceded by a *members only* reception in the Ruttan Room at 5:30 pm.