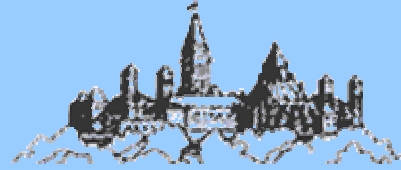




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Coherent anti-Stokes Raman scattering (CARS) microscopy in biology and medicine

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Coherent anti-Stokes Raman scattering (CARS) microscopy has been demonstrated as a powerful tool for non-invasive, chemical imaging of biological systems. Instead of relying on external labeling agents or on the difference in refractive index in the sample, the contrast in CARS microscopy is obtained from vibrational resonance that demonstrates selectivity to specific chemical bonds. This nonlinear optical microscopy technique permits fast data acquisition times and has inherent 3-dimensional sectioning capability. Our implementation of CARS microscopy based on the use of a single unamplified femtosecond pulse laser and photonic crystal fibers, will be discussed. This novel, cost-effective light source for CARS microscopy could be fairly readily adapted to most currently installed two-photon excitation fluorescence microscopy setups, resulting in major cost savings. Applications of CARS microscopy in such diverse areas as neuroscience and water quality monitoring, will be demonstrated.

Dr. Sangeeta Murugkar is a Research Associate in Biophotonics in the group led by Prof. Hanan Anis in the School of Information Technology and Engineering (SITE) at the University of Ottawa. Prior to this, she worked as a Research Scientist in the Advanced Materials and Processing Group at JDS Uniphase in Ottawa. Her current research interests include development and applications of CARS microscopy and endoscopy as well as Raman microspectroscopy in biology and medicine. Dr. Murugkar holds a Ph.D. in Physics from the University of Michigan, Ann Arbor.

February 28, 2008

17:30 – 17:00 pm

Mackenzie Building 4359

Carleton University

admission is free

Light refreshment will be served



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