



Contribution ID: 42

Type: **Poster Presentation**

Extracting a vibrational Raman spectrum from a broadband Coherent Anti-Stokes Raman Scattering measurement

Thursday, 28 June 2018 15:00 (2 hours)

Probing the vibrational energy states of molecules can be done by Coherent Anti-Stokes Raman Scattering (CARS) Spectroscopy. Traditionally two or three different laser beams are employed to pump and probe the vibrational spectrum of molecules, probing the molecules one wavelength at a time. With the introduction of a coherent broadband light source it is possible to pump and probe multiple states simultaneously, with a single broadband beam. Increasing the pump bandwidth has the disadvantage of increasing the non-resonant CARS signal which drowns out and masks the spectrum-containing resonant signal. For broadband single beam CARS, the question is: how does one extract the Raman spectrum from the mix of resonant and non-resonant CARS? In this presentation we introduce novel techniques that answer this question. We simulate these techniques to illustrate the expected single beam CARS measurements and how a vibrational Raman spectrum can be extracted. Comparisons are made between these simulations and experiments on liquid and crystalline samples to prove the techniques.

Please confirm that you have carefully read the abstract submission instructions under the menu item "Call for Abstracts" (Yes / No)

Yes

Consideration for student awards
Choose one option from those below.
N/A
Hons
MSc
PhD

PhD

Supervisor details
If not a student, type N/A.
Student abstract submission requires supervisor permission: please give their name, institution and email address.

Prof Erich Rohwer, Laser Research Institute, egr@sun.ac.za

Primary authors: Mr SPANGENBERG, Dirk-Mathys (University of Stellenbosch); Prof. ROHWER, Erich (University of Stellenbosch); Dr NEETHLING, Pieter (Laser Research Institute, University of Stellenbosch); Mr VILJOEN, Ruan (Stellenbosch University)

Presenter: Mr VILJOEN, Ruan (Stellenbosch University)

Session Classification: Poster Session 2

