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Polarization Sensitive Coherent Raman Measurements of DCVJ JOSIAH ANDERSON, NATHAN COOPER, CARLOS LAWHEAD, TEGAN SHIVER, LASZLO UJJ, University of West Florida — Coherent Raman spectroscopy which recently developed into coherent Raman microscopy has been used to produce label free imaging of thin layers of material and find the spatial distributions of certain chemicals within samples, e.g. cancer cells.(1) Not all aspects of coherent scattering have been used for imaging. Among those for example are special polarization sensitive measurements. Therefore we have investigated the properties of polarization sensitive CARS spectra of a highly fluorescent molecule, DCVJ.(2) Spectra has been recorded by using parallel polarized and perpendicular polarized excitations. A special polarization arrangement was developed to suppress the non-resonant background scattering from the sample. These results can be used to improve the imaging properties of a coherent Raman microscope in the future. This is the first time coherent Raman polarization sensitive measurements have been used to characterize the vibrational modes of DCVJ. 1: K. I. Gutkowski, et al., "Fluorescence of dicyanovinyl julolidine in a room temperature ionic liquid " **Chemical Physics Letters 426 (2006) 329 – 333** 2: Fouad El-Diasty, "Coherent anti-Stokes Raman scattering: Spectroscopy and microscopy" **Vibrational Spectroscopy 55 (2011) 1-37**

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