

Abstract Submitted
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Electronic Resonance Enhancement in Raman and CARS Spectroscopy: Surface Enhanced Scattering of Highly Fluorescent Molecules¹

CARLOS LAWHEAD, LASZLO UJJ, University of West Florida — Surface enhanced Raman spectroscopy (SERS) is an extremely useful tool in increasing sensitivity of Raman spectroscopy; this technique significantly increases the signal from vibrational resonances which can overcome background fluorescence. Silver nanoparticles coated substrates and the silver nanoparticles in solution were used on a variety of fluorescent molecules in order to overcome sample complexities and measure the vibrational spectra. The possible enhancement of SERS using a coherent Raman (CARS) method was investigated, but enhancement factors due to Surface Enhanced CARS have yet to be verified. The instrument used was developed in the University of West Florida Physics Department utilized the second harmonic of a Nd:YAG laser to provide the excitation wavelength at 532 nm and is capable of both transmission and reflection Raman measurements.

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