

Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Confocal absorption microscopy of biomolecules and single cells from the visible to the ultraviolet spectral range FATHOLAH SALEHI, SANGHOON PARK, Department of Physics and College of Optics, University of Central Florida, Orlando, MICHAEL E. SIGMAN, Department of Chemistry and College of Optics, University of Central Florida, Orlando, ALFONS SCHULTE, Department of Physics and College of Optics, University of Central Florida, Orlando — We present a versatile approach for absorption spectroscopy on the micron scale that combines a broadband white light source with a confocal microscope and a multichannel detector. The attenuation of the propagating light provides a mechanism for contrast that allows spectrally resolved measurements of biomolecules in minuscule quantities and of single live cells. UV absorption spectra of aromatic amino acids, proteins, and single stranded DNA oligomers (100 bases) in solution are measured with less than 10^7 molecules in the probe volume. We discuss applications to spectroscopically identify heterogeneities at the single cell level and to the label-free detection of nucleic acids.

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Date submitted: 18 Nov 2012

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