

Abstract Submitted
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Micro-Spectroscopy of Proteins and Cells at Variable Pressure in a Micro-Capillary SANG HOON PARK, SILKI ARORA, ALFONS SCHULTE, University of Central Florida — Combining Raman microscopy with a micro-capillary compartment enables spectroscopic studies of small amounts of biological material at variable pressure. We present experiments employing a variety of optical probes over the pressure range from atmospheric pressure to 4 kBar in a micro-capillary which uses less than 100 nanoliters of sample. We investigate pressure effects on the Raman spectrum of poly(L-glutamic acid) and proteins in solution. A shift of the amide I band in poly(L-glutamic acid) to lower frequency with pressure may suggest significant change in secondary structure towards α -helical conformation. The micro-capillary also allows to enclose living cells and to optically interrogate them through a microscope. This is demonstrated by Raman spectroscopy of individual red blood cells.

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