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**Pressure and Temperature Effects on Polypeptides and Biomolecules Probed by Micro-Raman Spectroscopy** SANGHOON PARK, ALFONS SCHULTE, Department of Physics and College of Optics, University of Central Florida — We investigate pressure and temperature effects on the secondary structure of Poly-L-glutamic acid (PGA) in D<sub>2</sub>O buffer (pH 5.4) solution. Our setup employs a Raman microscope equipped with a micro-capillary high-pressure cell and a variable temperature stage. Raman spectra are acquired over the pressure range from 0.1 to 300 MPa while the temperature can be varied from 270 K to 330 K. The amide I band of PGA is sensitive to pressure and temperature, and by spectral deconvolution we determine the relative contributions due to  $\alpha$ -helix and random coil conformations. The amount of  $\alpha$ -helix increases with increasing pressure. Extensions of these experiments to model proteins and lipids are presented.

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