

Abstract Submitted  
for the MAR10 Meeting of  
The American Physical Society

**Exploring the Effect of Preferential Hydration on the Dynamics of Lysozyme in Glycerol-Water Solutions** KRISTA G. FREEMAN, Cleveland State University, ALEXANDER AGAPOV, University of Akron, KIRIL A. STRELETZKY, Cleveland State University, ALEXEI P. SOKOLOV, University of Tennessee — The relaxation processes of the protein lysozyme in glycerol-water solutions were studied with Dielectric Spectroscopy and Dynamic Light Scattering (DLS) in a wide temperature range. Analysis of the dielectric spectra revealed three relaxation processes: protein rotation, large scale protein motions (slow  $\delta$ -relaxation), and solvent  $\alpha$ -relaxation. Analysis reveals a decoupling of protein dynamics from the solvent relaxation. These effects were also studied by comparing the protein diffusion as measured by DLS and the viscosity of solutions. Both spectroscopic techniques suggest preferential hydration of the protein in solution.

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Date submitted: 20 Nov 2009

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