

Abstract Submitted
for the OSF10 Meeting of
The American Physical Society

Study of Protein Dynamics in Viscous Solvent KRISTA FREEMAN, Department of Physics, Cleveland State University, ALEXANDER AGAPOV, Department of Polymer Science, The University of Akron; Department of Chemistry, University of Tennessee, ALEXEI SOKOLOV, Department of Chemistry, University of Tennessee, KIRIL STRELETZKY, Department of Physics, Cleveland State University — The dynamic processes apparent in glycerol:water:lysozyme solutions over a large temperature range were studied with Dielectric Spectroscopy (DS) and Dynamic Light Scattering Spectroscopy (DLS). Analysis of the DS spectra reveals a decoupling of large-scale protein motions from the main structural relaxation of glycerol. Further studies show a decoupling of protein rotation, large-scale protein motions, and protein diffusion (as measured by DLS) from solution viscosity. The decoupling is analogous to that of chain and segmental polymer dynamics with small-scale heterogeneities explained by preferential hydration of the protein in solution.

Krista Freeman
Department of Physics, Cleveland State University

Date submitted: 12 Sep 2010

Electronic form version 1.4