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**Dynamics in Complex Fluids Formed by Conjugated Polymers**

NARESH OSTI, Department of Chemistry, Clemson University, Clemson, SC 29634, MADHUSUDAN TYAGI, NIST Center for Neutron Research, National Institute of Standards and Technology, Gaithersburg, MD 20899, DILRU RATNAWEERA, Department of Chemistry, Clemson University, Clemson, SC 29634, UWE BUNZ, Department of Chemistry and Biochemistry Georgia Institute of Technology, Atlanta, GA 30332, DVORA PERAHIA, Department of Chemistry, Clemson University, Clemson, SC 29634 — Alkyl di-substituted *para*-polyphenyleneethylene (PPE) associates into several complex fluids in dilute solutions of toluene. At high temperature the molecules are isolated and assume extended configuration. As the temperature decreases, the molecules associate and eventually jam in to a fragile gel. These phases are optically active where the dynamic processes affect their optical characteristics. Inelastic Neutron Back Scattering conjunction with Neutron Spin Echo was used to characterize the dynamics on multiple length scales at different temperatures. The current talk will introduce the neutron backscattering results that follow internal dynamics within the PPE molecules as they are confined into aggregates and jams to form a fragile phase. The data will be discussed in terms of Kohlrausch-Williams-Watt model that provides characteristics time constants for the different dynamic processes.

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