

Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Dynamics in Polymer Melts and Nanocomposites GERALD SCHNEIDER, Louisiana State Univ - Baton Rouge — Intense research has led to substantial progress in the field of polymer melts and nanocomposites, both regarding the fundamental understanding and the relationship to applications. From a fundamental point of view, knowing the microscopic single chain dynamics is important. It may even lead to optimized materials ranging from the classical car tire to battery or fuel cell applications. In polymer melts, different processes, such as diffusion, reptation, contour length fluctuations, etc. occur and determine the macroscopic results, e.g. obtained by rheology. In nanocomposites confinement effects and interactions of chains with surfaces play an important role. High resolution techniques, such as small-angle neutron scattering or neutron spin echo spectroscopy are suited to explore the structure and dynamics of chains. The presentation illuminates the fundamental relationship between the microscopic dynamics and the mesoscopic properties, exploiting different experimental techniques, such as dielectric spectroscopy, rheology, neutron scattering and neutron spin echo spectroscopy.

Gerald Schneider
Louisiana State Univ - Baton Rouge

Date submitted: 06 Nov 2015

Electronic form version 1.4