Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Concentration dependence of dynamics of a droplet microemulsion MICHIHIRO NAGAO[1], Indiana University, HIDEKI SETO, Kyoto University, Japan — We will present a concentration dependence of dynamics of a spherical droplet microemulsion, consisting of aerosol-OT (AOT), as a surfactant, water, and decane. This mixture forms spherical microemulsion in a wide range of concentration. With keeping water to surfactant ratio constant, concentration of water plus surfactant was changed. The static structure of this system has been determined by small-angle neutron scattering (SANS) using the relative form factor method in the droplet concentration range from 5 to 75 % [1]. Dynamics of droplet microemulsions have been determined using neutron spin echo technique, which is suitable to measure dynamics of systems in nanometer and nanosecond scales. We measured dynamics of the system at 5, 30, and 60 % of droplet concentration. Using analogous data reduction procedure to SANS, contribution of shape fluctuations is decoupled from structure fluctuations. Concentration dependence of shape fluctuations and structure fluctuations will be discussed. [1] M. Nagao et al., Phys. Rev. E 75, 061401 (2007).

[1]Also at National Institute of Standards and Technology

Michihiro Nagao
Indiana University

Date submitted: 27 Nov 2007 Electronic form version 1.4