DYNAMIC LIGHT SCATTERING STUDY OF A FOUR-COMPONENT MICROEMULSION SYSTEM.

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A four-component microemulsion system has been investigated using the dynamic light scattering (DLS) technique. A brief explanation of the DLS experimental setup and basic DLS theory will be presented. Data from the microemulsion system will be presented for a wide range of particle concentrations (volume fraction from 0 to 0.50) demonstrating a transition in the relaxation behavior of the system at a well-defined concentration. Below this concentration the system exhibits a single characteristic relaxation time, whereas above this concentration there are two characteristic times, one short and one much longer. Data from a range of scattering angles will also be presented for comparison. We will present a method for extracting the long-time and short-time diffusion coefficients from the data and summarize how they depend on system composition.