

**STUDY OF AOT-BASED MICROEMULSIONS USING DERIVATIZED  
DANSYL CHLORIDE FLUORESCENT PROBES.** *M. Gates, M. Gawryla, and A.  
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Fluorescent probes offer unique advantages in the study of complex biological and chemical systems. The emission wavelength and intensity of these compounds are highly sensitive to the immediate chemical environment of the probe molecule. In this presentation we report on the synthesis and use of primary and secondary amine derivatives of dansyl chloride to probe the microenvironments of AOT-stabilized water-in-decane microemulsions. The primary amine was obtained by reacting dansyl chloride with 6-aminohexanol. The secondary amine probe was synthesized using piperidine. These probes exhibit a shift in the emission maximum of over 50 nm between the spectrum in decane and that in a microemulsion droplet. The emission intensity drops over one hundred fold when the probe is transferred from a hydrocarbon to water. Analysis of the fluorescence data revealed that 2-methyl-2-propanol resides in the water droplet domains, as does the primary-amine probe. The secondary amine probe partitions between the continuous decane medium and the surface of the droplets. However, the partitioning of the secondary amine probe was time dependent, changing over a period of days. This long time behavior was unexpected and became the focus of the final weeks of the study.