

Abstract Submitted  
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**Laser Transmission Spectroscopy and applications to liposome studies** FRANK LI, JAMES MARR, CHING-TING HWANG, ROBERT SCHAFER, ZACHARY SCHULTZ, STEVEN RUGGIERO, CAROL TANNER, University of Notre Dame — We describe the implementation of precision laser transmission spectroscopy (LTS) for sizing nanoparticles in suspension. Our apparatus incorporates a tunable laser and balanced optical system which measures light transmission over a wide (210 – 2300 nm) wavelength range with high precision and sensitivity. Spectral inversion was employed to determine both the particle size distribution and absolute density of particles with diameters over a total range of 5 to 3000 nm. LTS has a dynamic range of  $\sim 10^3$  particles/mL to  $\sim 10^{10}$  particles/mL ( $5 \times 10^{-8}$  vol.% to 0.5 vol.%). Currently, LTS is being applied as a tool to investigate the behavior of liposomes, dipalmitoylphosphatidylcholine (DPPC) and dipalmitoylphosphatidylserine (DPPS), under the presence of fusing and de-aggregating agents. Our measurements indicate a maximum diameter of 400 nm for liposomes suspended in solution after fusion.

Frank Li  
University of Notre Dame

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