

Abstract Submitted
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Particle dynamics and rheology of SWNT suspensions under shear and electric fields CHEN LIN, PETER HUANG, JERRY SHAN, Rutgers University — The net orientation angle of single-wall nanotubes (SWNTs) in liquid suspension under combined shear flow and electric fields is investigated experimentally with an optical polarization-modulation technique. The macroscopic viscosity of the suspension under the shear and electric fields is also measured simultaneously to the optical measurement. Theoretical predictions of the time scales of two particle-dynamics processes, the orientation of particles and the formation of microstructure in the suspension, are compared with experimental data. The relation between the particle dynamics and the macroscopic rheology of the dilute SWNT suspension is discussed.

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