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Electrorheology of single wall carbon nanotubes/silicone oil suspensions under AC fields CHEN LIN, JERRY W. SHAN, Rutgers University —
Electrorheological properties of single wall carbon nanotubes (SWNTs) suspended in silicone oil are experimentally investigated in this work. Nanotube alignment and the formation of strands and chains of nanotubes are observed in the suspensions when an alternating current (AC) electric field is applied. The rheological measurements show that the nominal viscosity of a 0.002% mass-fraction SWNT/silicone oil suspension increases by more than 15% at low shear rates under an AC field. The relationship between stress and strain rate is investigated for varying electric-field strengths and suspension concentrations.

Jerry Shan
Rutgers University

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