Abstract Submitted
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Investigation of colloidal interactions in nanoparticle suspensions with a single optical trap[1] JOSEPH JUNIO, ERIC BLANTON, H. DANIEL OU-YANG, Lehigh University — Colloidal interaction parameters such as virial coefficients or bulk modulus are traditionally measured by scattering methods. However, experimental difficulties often limit the range of applications of these methods to idealized systems. Multiple optical tweezers have also been used to study interparticle forces, but this has been limited to micron size individual particles at infinite dilution. We propose a new approach to investigate many body interactions of sub-micron colloidal particles in native suspensions with a single optical trap. Using a blinking optical trap and confocal detection of optical signals, this approach can be used to measure many body interactions in suspensions of colloidal particles in the range of tens to hundreds nanometers in size. Theoretical calculation and preliminary experimental data will be presented at the talk.

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