Facility for Light Scattering at Yale University

Investigating structure & dynamics of suspended nanomaterials

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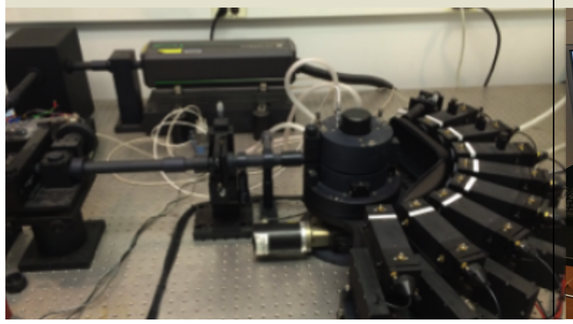
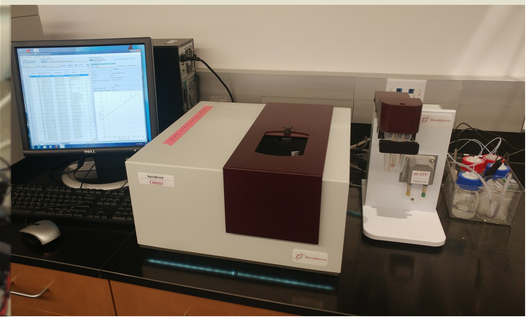
Introduction

The Facility for Light Scattering (FLS) at Yale University provides a suite of measurement techniques for in situ, non-invasive characterization of nanomaterial suspensions to determine size, shape, surface charge, aggregate structure and dynamics, suspension stability, and more. FLS users study a wide variety of materials, from synthesized and engineered materials like nanotubes and nanowires, metal oxide particles, and synthetic catalysts, to natural and biological materials including proteins, lipid vesicles, and extracellular material.

ALV-5000
Correlator & Goniometer



NanoBrook Omni
Brookhaven Instruments



Measurement Techniques

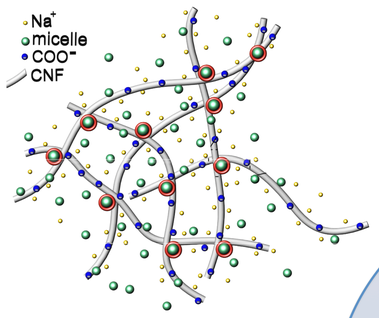
Dynamic Light Scattering (DLS)*
- *– detection limit down to nm scale*

Static Light Scattering (SLS)*
- *– multi-angle (q-dependent) measurements*

Phase Analysis Light Scattering (PALS)
- *– zeta potential & point of zero charge*

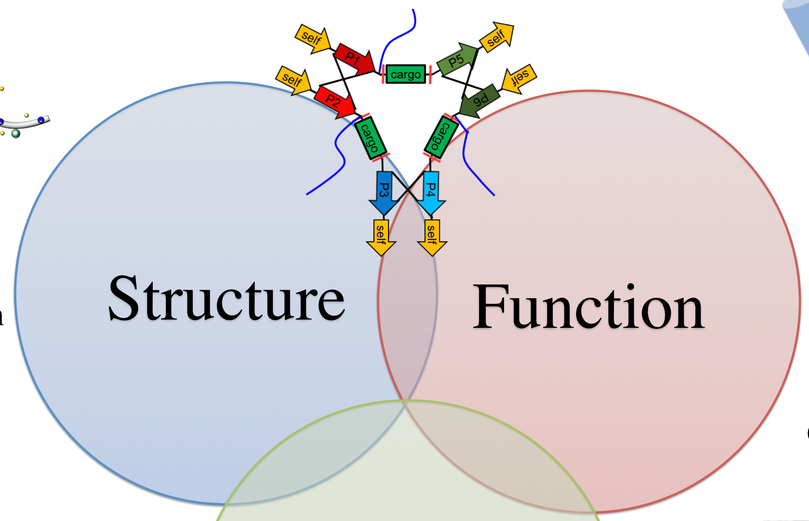
*including time-resolved measurements & combined DLS & SLS capabilities

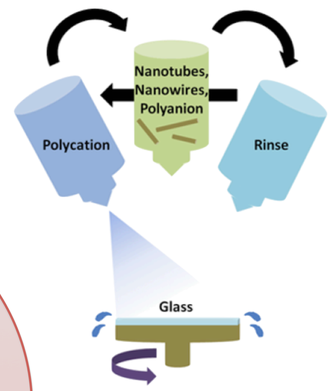
Selected Current & Recent Research



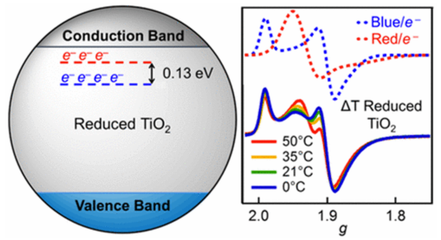
Micellar bridging of cellulose nanofibers for rheological modification [Osuji Lab, Chemical Engineering]

Activatable protein nanoparticles for targeted drug delivery [Zhou Lab, Biomedical Engineering & Neurosurgery]

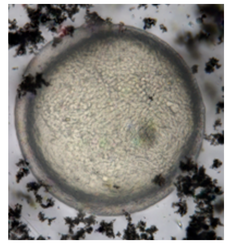




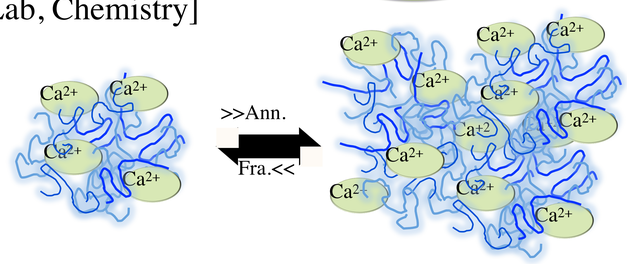
Spin-spray layer-by-layer nanowire assembly [Taylor Lab, Chemical Engineering]



Fundametals of charge transfer in TiO_2 nanoparticles [Mayer Lab, Chemistry]



Impact of nanomaterial aggregatino on toxicity [Zimmerman Lab, Forestry & Environmental Engineering]



Marine polysaccharide aggregation [Elimelech Lab, Environmental Engineering]

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