Advanced Laboratory Course
CHPH707, Section #1312
Spring 2014

Photon Correlation Spectroscopy of Soft Matter

Three to Four Credits

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The Photon Correlation Spectroscopy facility, also known as Dynamic Light Scattering (DLS), at IPST is now available as an Advanced Laboratory course that fulfills the Advanced Laboratory requirement. The DLS has three state-of-the-art instruments for the characterization of nano-and meso-scale heterogeneities in soft-matter materials, such as nanoparticles, polymers, protein molecules in solution, gels, and microemulsions.

With DLS the size of nanoparticles suspended in liquid media and the life-time of mesoscale fluctuations can be measured. Real-time nanoparticle aggregation can also be monitored. The course will include a brief theoretical introduction and an individual experimental project conforming to student background and interests.

A short on-line exam on laser safety is required prior to experimental work.

Lab Research Project

A lab research project will require measurements of a nano length-scale in complex fluids, a theoretical analysis, literature and web search, as well as computer-based work, which will include computation, data analysis, and plotting graphs. The format is flexible and may vary depending on chosen software.

No final exam will be required