

# SOCIETY OF PHYSICS STUDENTS (SPS) EVENT

## **DEPOLARIZED LIGHT SCATTERING OF ROD-LIKE PARTICLES: FROM BIOPOLYMERS TO CARBON NANOTUBES**

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Oh what's that, you thought that light scattering only pertained to spherical particles? Well, not any more. Over the summer I worked in the Light Scattering Spectroscopy lab. After constructing the Depolarized Dynamic Light Scattering (DDLs) setup, I used the technique to investigate the rotational and translational diffusive properties of rod-like proteins and biopolymers. I also used different models to analyze the DDLs data. This new setup allows many different rod-like systems to be studied.

How does this work you may ask. Well, a laser beam intrinsically has a certain polarization. A manual polarizer is placed in front of the detector allowing one to select a certain angle of polarization that is collected and thus analyzed. In a solution of rod-like particles, the rods possess translational motion as well as rotational motion about their axes. This rotation actually scatters the incident light at a new polarization!

I chose a different rod-like particle, carbon nanotubes, for my Honor's Project. One can buy carbon nanotubes with specific dimensions. This is an ideal particle system for my project because the dimensions are known and DDLs experimental method and analysis can be easily tested. Lastly, using carbon nanotubes data for my project makes it sound cool.

WHERE  
SI-117

WHEN  
12 - 1pm  
Tuesday, December 1, 2009