

Center for Soft Matter and Biological Physics

Discussion Meeting

Deepali Shirsekar

Mechanical Engineering, Virginia Tech

**“Bidirectional Reflectance Measurement of Black Coating Z302
for use in Optical Instrument Design ”**

Friday, Sept. 21, 2018

4:00 pm—5:00 pm

304 Robeson Hall

The bidirectional reflectance distribution function (BRDF) plays a fundamental role in the optical characterization of a surface. The BRDF is a measure of the amount of light incident from one direction that is scattered by a surface in another direction. This talk introduces the concept of BRDF and presents the thesis research of graduate student, Deepali Shirsekar, to investigate the BRDF of black coating, Aeroglaze Z302. Work includes design and fabrication of a high-accuracy bidirectional reflectometer and its use to measure the bidirectional reflectance of a black absorber Aeroglaze Z302[®]. A BRDF model consisting of diffuse, glossy, and specular components is fitted to the experimental results. Finally, the Monte Carlo ray-trace (MCRT) method is used to simulate the performance of any optical instrument which has Z302 material coated on its active surfaces.