

Abstract Submitted  
for the OSF06 Meeting of  
The American Physical Society

**Advancements in tip preparation methods for scanning nanoRaman spectroscopy.** SCOTT HAMILTON, ANDREY MALKOVSKIY, NAM-HEUI LEE, RYAN HARTSCHUH, ALEXEI SOKOLOV, MARK FOSTER, Maurice Morton Institute of Polymer Science, University of Akron — Tip enhanced Raman spectroscopy uses the enhanced electric field around a metallized probe to enhance the Raman signal from a very small scattering volume in proximity to the tip, yielding sub-diffraction limit spectroscopic resolution. Reproducible production of metallized tips that yield high field enhancement is a vital component of this technology. Moving beyond simple thermal evaporation coated tips, tips with more complicated features are being investigated. This includes tips decorated with metal nanoparticles of different sizes and shapes, tips with laterally patterned metal layers, and tips composed of layers of metal separated by thin dielectric films. To probe the electric fields of potential structures, nanoRaman scans are performed on patterned surfaces covered with thin analyte films with the goal of finding areas of greatest enhancement with high resolution.

Scott Hamilton  
Maurice Morton Institute of Polymer Science

Date submitted: 22 Sep 2006

Electronic form version 1.4