

# Analytical Seminar

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### *Novel Nanostructured Materials for Enhanced Chromatographic & Mass Spectrometry*

Chromatographic efficiency improves with the inverse square of the particle size of the chromatographic particle. This is well documented in most theories describing band dispersion in chromatography. As the dimension of the particle decreases the pressure drop across the chromatographic columns is expected to also increase. However, nanostructured materials that are not particle-based but nanofiber-based materials seem to be violating basic flow dynamic principles used in chromatography. This presentation will illustrate substantial improvements in chromatographic efficiencies using organized nanostructures without the expected gain in enhanced pressure drop. We will also illustrate unique range of chromatographic selectivity through the use of highly organized carbon nanostructures.

Surface enhanced-laser desorption ionization (SALDI) is an analytical technique that is increasingly used for the analysis of low molecular weight analytes and for species for which the SALDI surface provides unique selectivity. SALDI typically has low ionization efficiency and is limited in the molecular weight range that is detectable. Using the same nanomaterials that improves chromatographic performance, marked improvements in ionization efficiency, detection limits and molecular weight dynamic range are observed. These data will also be discussed in this presentation.

Thursday  
November 5

12:15 p.m.  
1315 Chemistry

Refreshments at  
12 p.m.



DEPARTMENT OF  
**Chemistry**  
UNIVERSITY OF WISCONSIN-MADISON