

## **Online Coupling of Flow-Field Flow Fractionation and Single Particle Inductively Coupled Plasma-Mass Spectrometry: Characterization of Nanoparticle Surface Coating Thickness and Aggregation State**

Khanh An Huynh<sup>a</sup>, Emily Siska<sup>b</sup>, and Edward Heithmar<sup>c</sup>

<sup>a</sup>National Research Council Post-Doctoral Research Associate with US Environmental Protection Agency, National Exposure Research Laboratory, Las Vegas, NV 89119

<sup>b</sup>Student Contractor with US Environmental Protection Agency, National Exposure Research Laboratory, Las Vegas, NV 89119

<sup>c</sup>US Environmental Protection Agency, National Exposure Research Laboratory, Las Vegas, NV 89119

Surface coating thickness and aggregation state have strong influence on the environmental fate, transport, and toxicity of engineered nanomaterials. In this study, flow-field flow fractionation coupled on-line with single particle inductively coupled plasma-mass spectrometry is used for developing methods to characterize these nanoparticle properties at environmentally relevant concentrations.