

Abstract Submitted  
for the TS4CF08 Meeting of  
The American Physical Society

**Using Single-Particle Fluorescence to Detect Bioaerosols** ELENA FERNANDEZ, New Mexico State University, HERMES HUANG, Yale University, YONG-LE PAN, Yale University, STEVEN HILL, RONALD PINNICK, Army Research Lab, RICHARD CHANG, Yale University — We have developed and operated an UV Laser-Induced Fluorescence single particle spectrometer which is capable of rapidly measuring the fluorescence emitted from individual aerosol particles, on-the-fly, as they are sampled by our sensor. Fluorescence-based detection methods have the advantage that they can deliver results in real-time and require little human labor in order to operate. We present ambient aerosol data measured in New Haven, CT, Las Cruces, NM, and Adelphi, MD. At the different locations, we find that the fluorescence characteristics of organic aerosols found remain rather similar. We also measured many different known samples in order to build a library of characteristic spectra to which we can compare the ambient data. In addition to measuring spectra from the aerosol particles, we have developed an air puffer technology which allows us to collect specific aerosol particles based on their fluorescence spectral signatures. The detection and collection of these Fluorescent Bioaerosols is important as we can detect potentially harmful single airborne particles such as biowarfare agents. The research also extends to soldier health as the regional climate of Iraq is similar to that of the Chihuahuan desert where Las Cruces, NM is located.

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Date submitted: 22 Sep 2008

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