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Single Particle Fluorescence & Mass Spectrometry for the Detection of Biological Aerosols

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Single Particle Fluorescence & Mass Spectrometry for the Detection of Biological Aerosols

Biological Aerosol Mass Spectrometry (BAMS) is an emerging technique for the detection of biological aerosols, which is being developed at Lawrence Livermore National Laboratory. The current system uses several orthogonal analytical methods to improve system selectivity, sensitivity and speed in order to maximize its utility as a biological aerosol detection system with extremely low probability of false alarm and high probability of detection. Our approach is to pre-select particles of interest by size and fluorescence prior to mass spectral analysis. The ability to distinguish biological aerosols from background and to discriminate bacterial spores, vegetative cells, viruses and toxins from one another will be shown. Data from particle standards of known chemical composition will be discussed. Analysis of ambient particles will also be presented.

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