

Colloquium Notice

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Multispectral Aerosol Characterization: two-dimensional angular optical scattering and digital holography

Light scattering from non-spherical particles and aggregates exhibit complex structure that is revealed only when observed in two angular dimensions. However, due to variations in shape, packing, and orientation of such aerosols, the structure of two-dimensional angular optical scattering (TAOS) patterns varies among particles. The spectral dependence of scattering contributes further to the observed complexity, but offers another facet to consider. By leveraging multispectral TAOS data from flowing aerosols, we have identified novel morphological descriptors that may be employed in multivariate statistical algorithms for "unknown" particle classification. While these descriptors provide a means for grouping particles as a class, they provide little information about particle orientation. For this, we implement digital holography, which can be recorded simultaneously with TAOS data on a single camera to enhance particle characterization. This talk will discuss the underlying principles behind the two strategies and their synergy for particle characterization.

Monday

September 19, 2016

Starts at 12:15 PM

Coffee at 12:00 PM

Physics Conference Room, SB B326