

Abstract Submitted
for the 4CF09 Meeting of
The American Physical Society

Two-Dimensional Angular Scattering Instrument for Aerosol Characterization MATTHEW BERG, NRC Postdoc, STEVEN HILL, GORDEN VIDEEN — We describe the development of a novel light scattering apparatus to study single aerosol particles. The apparatus collects a particle's scattered light over two angular dimensions in the near-forward direction. Single particles are trapped in an electrodynamic levitator or dispersed in an aerosol flow and illuminated one-by-one by a 30ns pulsed 532 nm Nd:YAG laser. The optical arrangement uses a simple spatial filter to remove unscattered light from the near-forward direction, allowing collection of the scattered light within a two-dimensional angular range from 0.1~15 degrees centered on the forward direction. This angular range enables a simple power-law analysis of the scattered intensity, which can be used to obtain estimates of the particle size without recourse to complicated data analysis.

Matthew Berg
NRC postdoc

Date submitted: 01 Oct 2009

Electronic form version 1.4