

Abstract Submitted  
for the DPP07 Meeting of  
The American Physical Society

**Ionosphere Dusty Plasma in the Laboratory** SCOTT ROBERTSON,  
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ZOLTAN STERNOVSKY — We describe an experiment that creates dusty plasma  
with nanometer-sized particles that is similar to the ionosphere in which there are  
“smoke” particles from the ablation of meteors. The meteoritic smoke layer is global  
and extends from about 70-100 km. The smoke particles are thought to be the con-  
densation nuclei for noctilucent clouds. The meteoritic particles descend into the  
polar stratosphere in the winter. A Zn vapor source is used to create a smoky gas  
of Zn particles that are up to tens of nanometers in size and these are seen both by  
laser scattering and by collecting them on a substrate viewed by electron microscope.  
A differential pumping scheme is used to introduce the particles into a hot-filament  
discharge plasma. Probe methods are used to search for charged nanometer-sized  
particles in decaying afterglow plasma.

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Date submitted: 20 Jul 2007

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