

Abstract for an Invited Paper  
for the DPP08 Meeting of  
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**Complex Plasma Physics and Rising Above the Gathering Storm<sup>1</sup>**

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Research in complex plasma is prevalent across a variety of regimes ranging from the majority of plasma processing environments to many astrophysical settings. Dust particles suspended within such plasmas acquire a charge from collisions with electrons and ions in the plasma. Depending upon the ratio of their interparticle potential energy to their average kinetic energy, once charged these particles can form a gaseous, liquid or crystalline structure with short to longer range ordering. The field of complex plasmas thus offers research opportunities across a wide range of academic disciplines including physics, chemistry, biology, mathematics, electrical engineering and nanoscience. The field of complex plasmas also offers unique educational research opportunities for combating many of the issues raised in *Rising Above the Gathering Storm*, recently published by the National Academies Press. CASPER's Educational Outreach programs, supported by the National Science Foundation, the Department of Education and the Department of Labor takes advantage of these opportunities through a variety of avenues including a REU / RET program, a High School Scholars Program, integrated curriculum development and the CASPER Physics Circus. Together, these programs impact thousands of students and parents while providing K-12 teachers with curriculum, supporting hands-on material and support for introducing plasma and basic physical science concepts into the classroom. Both research results and educational outreach concepts from the above will be discussed.

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