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**Structural Phases in Complex Plasmas** TRUELL HYDE, JIE KONG,  
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— Dust particles imbedded within a plasma acquire a charge from collisions with free electrons and ions in the plasma. If the ratio of the inter-particle potential energy to the average kinetic energy is sufficient, the particles exhibit short to long range ordering. Interestingly, dust particles under these conditions often form vertical chains due to the influence of the wakefield produced by the streaming ions in the plasma sheath. Such particle chains are proving to be a unique diagnostic tool for investigating the physics behind the basic properties of the system. This paper will discuss recent experimental results illustrating various aspects of this phenomenon.

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