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**Naturally Occurring Dusty Plasmas in the Solar Wind** HAIRONG LAI, IGPP, UCLA, G.L. DELZANNO, LANL, C.T. RUSSELL, IGPP, UCLA — Interplanetary Field Enhancements (IFE) appear as smoothly varying cusp-shaped enhancements in the interplanetary magnetic field which last minutes to many hours. They are seen throughout the inner solar system from 0.3 AU to 5 AU, at a rate of close to one per month. Multispacecraft observations show that these enhancements travel at the solar wind velocity. They produce a pressure ridge in the plasma pressure that acts against the solar wind flow on one side and pushes outward on the other side, possibly carrying charged dust outward. Such mass must consist of individual dust grains of only a few nm in diameter. To have the observed coherent interaction over distances much larger than the Debye length, the dust cloud must be sufficiently dense over those distances to form a dusty plasma. Such dusty plasma clouds could be created by releases from comets or in collisions between meteoroids. We present the observational evidence for such dusty plasma and discuss the charging processes and dynamic processes of these dust particles.

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