

Abstract Submitted  
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**Drift wave turbulence and associated transport in a collisional dusty magnetoplasma** NITIN SHUKLA, GoLP/Instituto de Plasmas e Fusão Nuclear, Instituto Superior Técnico, 1046-001 Lisboa, Portugal, P.K. SHUKLA, Fakultät für Physik und Astronomie, Institut für Theoretische Physik IV, Ruhr-Universität Bochum, D-44780 Bochum, Germany., J.T. MENDON, GoLP/Instituto de Plasmas e Fusão Nuclear, Instituto Superior Técnico, 1046-001 Lisboa, Portugal., DASTGEER SHAIKH, Center for Space Plasma and Aeronomy Research The University of Alabama in Huntsville Huntsville, AL-35899 — A set of nonlinear equations for the low-frequency, long and short wavelength (in comparison with the ion gyroradius) electrostatic drift waves in a nonuniform collisional dusty magnetoplasma is derived. In the linear limit, the presence of stationary charged dust grains is found to enhance the frequency and the growth rate of the long wavelength drift wave instability. Subsequently, nonthermal drift wave fluctuations induced cross-field plasma particle transport is also enhanced. Furthermore, nonlinear mode coupling equations for long and short wavelength drift waves are useful for studying the formation of structures and zonal flows in nonuniform collisional dusty magnetoplasmas, such as those in the Earth's mesosphere and cometary tails where collisional interactions between the electrons and ions with neutrals play an essential role.

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