

Abstract Submitted
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Nonlinear Magnetosonic Periodic and Solitary Waves in a Magnetized Dusty Plasma NIMARDEEP KAUR, NARESHPAL SINGH SAINI, Guru Nanak Dev University, Amritsar — An investigation of magnetosonic nonlinear periodic (cnoidal) waves is presented in a magnetized electron-ion-dust plasma having cold dust fluid with inertialess warm ions and electrons. The reductive perturbation method is employed to derive the Korteweg-de Vries equation. The magnetosonic cnoidal wave solution is derived using the Sagdeev pseudopotential approach under the specific boundary conditions. There is the formation of only positive potential magnetosonic cnoidal waves and solitary structures in the high plasma- β limit. The findings of the present investigation may be helpful in describing the characteristics of various nonlinear excitations in Earth's magnetosphere, solar wind, Saturn's magnetosphere, and space/astrophysical environments, where many space observations by various satellites confirm the existence of dust grains, highly energetic electrons, and high plasma- β .

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