

Cylindrical KP-Burgers Equation for Two-Temperature Ions in Dusty Plasma with Dissipative Effects and Transverse Perturbations

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Abstract: In this paper, the cylindrical KP-Burgers equation with variable coefficient for two-temperature ions in unmagnified dusty plasma with dissipative effects and transverse perturbations in cylindrical geometry is derived by using the standard reductive perturbation technique. With the help of variable-coefficient generalized projected Riccati equation expansion method, the cylindrical KP-Burgers equation is solved and shock wave solution is obtained. The effects of some important parameters to the shock wave solution are illustrated from the wave evolution figures. The effects caused by dissipation and transverse perturbations are also discussed.

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Key words: dusty plasma, KP-Burgers equation, shock wave

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