

Analytical Study of Nonlinear Dust Acoustic Waves in Two-Dimensional Dust Plasma with Dust Charge Variation

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Abstract: The nonlinear dust acoustic waves in two-dimensional dust plasma with dust charge variation is analytically investigated by using the formally variable separation approach. New analytical solutions for the governing equation of this system have been obtained for dust acoustic waves in a dust plasma for the first time. We derive exact analytical expressions for the general case of the nonlinear dust acoustic waves in two-dimensional dust plasma with dust charge variation.

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Key words: nonlinear dust acoustic waves, plasma, formally variable separation approach, exact analytical solution

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