

The Soliton Solution of the Quadratic-Cubic Nonlinear Schrodinger Equation

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Abstract : The quadratic-cubic nonlinear Schrodinger equation can be explained the weakly ion-acoustic waves in magnetized plasma with a slightly non-Maxwellian electron distribution by using the Madelung's fluid picture. However, the soliton solution to the quadratic-cubic nonlinear Schrodinger equation is determined by using the direct integration. By the characteristics of a soliton, the solution can be claimed that it's a soliton by considering its time evolution and their collisions between two solutions. These results are shown by applying the spectral method.

Keywords : soliton, ion-acoustic waves, plasma, spectral method

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