

Solitary Waves of a Perturbed sine-Gordon Equation

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Abstract: Based on the bifurcation and the idea that the solitary waves and shock waves of partial differential equations correspond respectively to the homoclinic and heteroclinic trajectories of nonlinear ordinary differential equations satisfied by the travelling waves, different conditions for the existence of solitary waves of a perturbed sine-Gordon equation are obtained. All of the corresponding approximate solitary wave solutions are given by integrating the derived approximate equations directly.

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Key words: solitary waves, bifurcation, sine-Gordon equation

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