Three Types of Expression in Dark-Soliton Perturbation Theory Based on Squared Jost Solutions

AO Sheng-Mei and YAN Jia-Ren

College of Physics and Information Science, Hunan Normal University, Changsha 410081, China

Abstract: Three types of expression in the dark-soliton perturbation theory based on squared Jost solutions are investigated in this paper. It is shown that there are three formally different results about the effects of perturbation on a dark soliton, and it is proved by means of a transformation between two integral variables that they are essentially equivalent.

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