BOUNDARY PROBLEM WITH DOUBLE SINE-GORDON EQUATION AND NEUMAN CONDITIONS: ANALYSIS OF THE PHYSICAL PARAMETERS INFLUENCE ON THE ANALYTICAL SOLUTIONS APPLICABILITY AND PHASE PORTRAITS

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The aim of our work is to obtain all types of analytical solutions of the boundary problem with double sine-Gordon equation and Neuman conditions. This task is very relevant in the study of long Josephson contacts with a second harmonic in the current-phase distribution. Work in this area has started relatively recently and the results obtained so far are presented in the articles [1,2]. The main issue raised was the applicability of the analytical expressions obtained. In this work classification and comprehensive analysis of the physical parameters under which it is possible to implement each of the solutions is made. Influence of the problem parameters on the change of the phase portraits is analyzed.

References

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