

# Adomian Decomposition Method for Approximating the Solutions of the Bidirectional Sawada-Kotera Equation

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In this paper, the decomposition method is implemented for solving the bidirectional Sawada-Kotera (bSK) equation with two kinds of initial conditions. As a result, the Adomian polynomials have been calculated and the approximate and exact solutions of the bSK equation are obtained by means of Maple, such as solitary wave solutions, doubly-periodic solutions, two-soliton solutions. Moreover, we compare the approximate solution with the exact solution in a table and analyze the absolute error and the relative error. The results reported in this article provide further evidence of the usefulness of the Adomian decomposition method for obtaining solutions of nonlinear problems.

*Key words:* Adomian Decomposition Method; Bidirectional Sawada-Kotera Equation; Adomian Polynomials.

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