OPERATIONAL MATRIX OF DERIVATIVE FOR JACOBI WAVELETS AND APPLICATION FOR SOLVING SECOND ORDER DIFFERENTIAL EQUATIONS

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Abstract

In this paper, we present a new operational matrix of derivative of Jacobi wavelets. Shifted Jacobi polynomials and their properties are employed for deriving a procedure to form this matrix. Then Jacobi wavelets expansions along with this operational matrix are applied for solving ordinary differential equations with non analytic solution. It is shown that Jacobi wavelets are very efficient and suitable for solving this kind of problem. Several numerical examples are given to illustrate the efficiency and performance of the presented method.

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