Solution of System of Generalized Abel’s Integral Equation using Gegenbauer Wavelets

Abstract

This has been seen that in some application for finding the analytical solution of mathematical problem is too complicated, so in recent years researcher has devoted lots of afforts to find the numerical solution of the equation. In this paper an application of the Gegenbauer wavelet method is applied to solve system of generalized Abel’s integral equation. This wavelet reduces the system of generalized Abel’s integral equation to a system of linear equation in generalized case such that the solution of the resulting system gives the unknown Gegenbauer wavelet coefficient of the solutions. Illustrative examples have been provided to demonstrate the validity and applicability of the proposed method and result has been compared with the exact solution. Lastly we have shown the error analysis to the proposed method and found that it is an quite efficient and has high accuracy.

References

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Index Terms

Computer Science Applied Sciences

Keywords

Generalized Abel's integral equation; Gegenbauer polynomial; Gegenbauer wavelets.