Solutions of first-order Volterra type linear integrodifferential equations by collocation method. (English) Zbl 1437.65231

Summary: The numerical solutions of linear integrodifferential equations of Volterra type have been considered. Power series is used as the basis polynomial to approximate the solution of the problem. Furthermore, standard and Chebyshev-Gauss-Lobatto collocation points were, respectively, chosen to collocate the approximate solution. Numerical experiments are performed on some sample problems already solved by homotopy analysis method and finite difference methods. Comparison of the absolute error is obtained from the present method and those from aforementioned methods. It is also observed that the absolute errors obtained are very low establishing convergence and computational efficiency.

MSC:
65R20 Numerical methods for integral equations
45J05 Integro-ordinary differential equations
45D05 Volterra integral equations
65L60 Finite element, Rayleigh-Ritz, Galerkin and collocation methods for ordinary differential equations

Full Text: DOI

References:

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