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A collocation method based on Bernoulli operational matrix for numerical solution of generalized pantograph equation. (English) [Zbl 1273.34082](#)

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Summary: This paper presents a direct solution technique for solving the generalized pantograph equation with variable coefficients subject to initial conditions, using a collocation method based on Bernoulli operational matrix of derivatives. Only a small dimension of the Bernoulli operational matrix is needed to obtain a satisfactory result. Numerical results with comparisons are given to confirm the reliability of the proposed method for the generalized pantograph equation.

MSC:

34K28 Numerical approximation of solutions of functional-differential equations (MSC2010)

65L03 Numerical methods for functional-differential equations

Cited in **58** Documents

Keywords:

functional differential equations; pantograph equation; collocation method; direct method; operational matrix; Bernoulli polynomials

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