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Collocation methods for nonlinear convolution Volterra integral equations with multiple proportional delays. (English) [Zbl 1280.65148](#)

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Summary: We apply the collocation methods to a class of nonlinear convolution Volterra integral equations with multiple proportional delays. We present the existence, uniqueness and regularity properties of the analytic solution for this type of equations, and then analyze the convergence and superconvergence properties of the collocation solution. The numerical results verify our theoretical analysis.

MSC:

[65R20](#) Numerical methods for integral equations
[45D05](#) Volterra integral equations
[45G10](#) Other nonlinear integral equations

Cited in **8** Documents

Keywords:

collocation methods; nonlinear convolution; Volterra integral equation; multiple proportional delays; superconvergence; numerical results

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