Oja, Peeter; **Saveljeva, Darja**
Cubic spline collocation for Volterra integral equations. (English) Zbl 1239.45004
Computing 69, No. 4, 319-337 (2002).

Summary: In the standard step-by-step cubic spline collocation method for Volterra integral equations an initial condition is replaced by a not-a-knot boundary condition at the other end of the interval. Such a method is stable in the same region of collocation parameter as in the step-by-step implementation with linear splines. The results about stability and convergence are based on the uniform boundedness of corresponding cubic spline interpolation projections. The numerical tests given at the end completely support the theoretical analysis.

MSC:

45D05 Volterra integral equations
65R20 Numerical methods for integral equations
65D07 Numerical computation using splines
41A15 Spline approximation

Keywords:

cubic spline collocation; spline projections; Volterra integral equations; stability and convergence of spline collocation method

Full Text: DOI