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Abstracts of Short Communications and Posters

Section:

15. Numerical Analysis and Scientific Computing

1991 MS Classification: 35, 41, 45, 65
Schult, Jörg, Weierstraß–Institut für Angewandte Analysis und Stochastik, Berlin, Germany
Stability condition for spline and multiwavelet collocation.
We consider collocation methods using splines with multiple knots or the corresponding multiwavelets as trial functions for approximately solving pseudodifferential equations on closed curves. Necessary and sufficient conditions for the stability are obtained in terms of the principal symbol of the pseudodifferential operator, the Fourier transforms of the generating multiscaling functions and the collocation points. In particular cases these conditions are given in terms of circular arcs. Moreover, optimal error estimates in the scale of Sobolev norms are given.
Reference: S. Prößdorf and J. Schult, Multiwavelet approximation methods for pseudodifferential equations on curves. Stability and convergence analysis. In: "The Numerical Treatment of Boundary Integral Equations" (eds. K. E. Atkinson and Y. Xu), Adv. Comput. Math. (to appear).