Boyd, John P.; Xu, Fei
Divergence (Runge phenomenon) for least-squares polynomial approximation on an equispaced grid and Mock-Chebyshev subset interpolation. (English) Zbl 1171.41004

Consider the approximation of a given function analytic in \((-1,1)\) by a \(N\)th degree polynomial that is chosen to minimize the least squares error at \(P\) equidistant points in the interval \([-1,1]\). Numerical evidence is presented that indicates that the Runge phenomenon which is present in the case \(P = N + 1\) can be weakened, but not completely eliminated, for \(P \gg N + 1\).

Reviewer: Kai Diethelm (Braunschweig)

MSC:
41A10 Approximation by polynomials

Keywords:
interpolation; Chebyshev interpolation; least squares approximation; polynomial approximation; divergence

Full Text: DOI

References:

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