
The error in uniform approximation of \(f(x) = |x|\) in [0,1] by rational functions of the form \(r_n(x) = x[p(x) - p(-x)]/[p(x) + p(-x)]\) is investigated where \(p(x) = \prod_{k=1}^{n} (x + x_k^{(n)})\) and the \(x_k^{(n)}\) are the roots of the Chebyshev polynomial \(T_{2n}\) lying in (0,1). It is shown that \(|x - r_n(x)| \leq C/(n \log n)\) for \(0 \leq x \leq 1\), the same order as by rational interpolation in equidistant points. The given order is best possible.

Reviewer: D.Gaier (Gießen)

MSC:
41A05 Interpolation in approximation theory
41A20 Approximation by rational functions

Keywords:
\text{rational interpolation}

Full Text: DOI

References:
[4] DOI: 10.1007/BF02401828 · Zbl 44.0475.01 · doi:10.1007/BF02401828

This reference list is based on information provided by the publisher or from digital mathematics libraries. Its items are heuristically matched to zbMATH identifiers and may contain data conversion errors. It attempts to reflect the references listed in the original paper as accurately as possible without claiming the completeness or perfect precision of the matching.