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ON THE BEST ONE-SIDED APPROXIMATION OF THE UNBOUNDED FUNCTIONS IN $L_{p,\omega}$ SPACES BY HERMITE FEJER-INTERPOLATION POLYNOMIALS

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Abstract

The main objective of this article is to prove some results of best one-sided approximation of unbounded functions in weighted space $L_{p,\omega}$ $(1 \le p < \infty)$ by Hermite-Fejer interpolation polynomials based on zero's of Chebyshev polynomial of the first kind. We have proved that

$$||f - H_n(f, \cdot)||_{p,\omega} \le \frac{c}{n} \sum_{k=1}^n \tau_k(f, \Delta)_{p,\omega}$$

and we obtained

$$E_n(f,\delta)_{p,\omega} \le \frac{c}{n} \sum_{k=1}^n \tau_k(f,\Delta)_{p,\omega}$$

and proved an inequality

$$\tilde{E}_n(f,\delta)_{p,\omega} \le \frac{c}{n} \sum_{k=1}^n \tau_k(f,\Delta)_{p,\omega}.$$

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