TWO-SIDED ESTIMATES CONCERNING THE NORM OF SOME PROJECTIVE OPERATORS

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Abstract. Let $(U_n)_{n\geq 0}$ be a sequence of linear and continuous operators associated to the spaces of continuous functions $C[a,b]$ or $C_{2\pi}$, which preserve the algebraic or trigonometric polynomials of a given degree, respectively.

The aim of this talk is to obtain two-sided estimates regarding the norm of these operators in order to establish their convergence and the topological structure of their unbounded divergence, i.e.:

$$\{f \in C[a,b] \text{ or } C_{2\pi} :\ \sup\{\|U_n f\| :\ n \geq 1\} = \infty\}.$$

For this purpose, some principles of functional analysis (such as principles of condensation of the singularities) are used.

Applications of these results concerning Lagrange interpolation, the product-quadrature procedures and the best approximation are given, too.

References

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