



Soviet-era science, translated into English

BIOCHEMISTRY

PLANT PHYSIOLOGY

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Abstract

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LETTER TO THE EDITOR

Having re-examined my note "On the impossibility of constructing a linear polynomial operator giving an approximation of the order of the best" ⁽¹⁾, I found that the method of proof of Theorems 1 and 2 makes it possible, without any additions, to obtain a considerably more interesting theorem, which, in the notation and terminology of the note mentioned, is formulated as follows:

Theorem. In order that, for a functional space of type E , it be possible to construct a sequence of linear trigonometric polynomial operations $U_n(f, x)$, $n = 1, 2, \dots$, giving an approximation of the order of the best, it is necessary and sufficient that for every $f \in E$ the equality

$$\|f - S_n(f)\| = O(E_n), \quad n = 1, 2, \dots,$$

hold, where $S_n(f)$ is the partial sum of the Fourier series of the function $f(x)$ of order n , and E_n is the best approximation of $f(x)$ by means of a polynomial of order n in the metric of the space E .

We note that the theorem remains valid for a certain more general class of

functional spaces, and also for the case of harmonic analysis on bicommutative topological groups.

D. Berman

REFERENCES CITED

¹ D. Berman, *DAN*, **120**, No. 6 (1958).

Note: Figure translations are in progress. See original paper for figures.

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