

Convergence of Fourier series by Vilenkin system in the case of unlimited $p(k)$

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The paper generalizes an analogue of the Dini sign, proved in [1]. And also some consequences are deduced.

Let X denote the group of characters of zero-dimensional group G , which the second axiom of countability. Then X is a discrete, countable, abelian, torsion group. N.Y. Vilenkin [2] showed X is the union of subgroups $\{X_s\}_{s=0}^{\infty}$, $X_s \subset X_{s+1}$, such that X_{s+1}/X_s is of prime order p_s . Such a pair (G, X) is called a Vilenkin system.

An analogue of the Dini sign with $p_k < +\infty$ has been proved [1]. In this work we prove an analogue of the Dini sign for unbounded p_k . And we prove convergence of Fourier series by Vilenkin system for $f(g) \in Lip \alpha(G)$ for unbounded p_k as well.

Bibliography

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 - [2] N.Ya. Vilenkin, *On a class of complete orthonormal systems*, *Izv. Akad. Nauk SSSR Ser. Mat.* **11** (1947), 363-400.
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