

Zhuk, V. V.

On the question of convergence of a trigonometric Fourier series at a point. (English. Russian original) [Zbl 0796.42003](#)

Russ. Acad. Sci., Dokl., Math. 46, No. 2, 349-353 (1993); translation from *Dokl. Akad. Nauk, Ross. Akad. Nauk* 326, No. 5, 770-775 (1992).

The author establishes certain new necessary and sufficient conditions for the convergence of Fourier series at a point. His conditions have the character of Tauberian theorems in which the Tauberian condition is written in the form

$$\lim_{n \rightarrow \infty} \int_0^\delta \varphi_x(t) t^{-1} \sin nt dt = 0,$$

where $\varphi_x(t)$ is less restrictive in relation to the original function f than the requirement that

$$\lim_{n \rightarrow \infty} \int_0^\delta (f(x+t) + f(x-t) - 2t) t^{-1} \sin nt dt = 0.$$

The author also studies analogous questions in relation to the conjugate series.

Reviewer: [L. Leindler \(Szeged\)](#)

MSC:

[42A20](#) Convergence and absolute convergence of Fourier and trigonometric series

[42A50](#) Conjugate functions, conjugate series, singular integrals

Keywords:

[convergence of Fourier series](#); [Tauberian condition](#); [conjugate series](#)