

## GENERALIZATION THEOREM ON CONVERGENCE AND INTEGRABILITY FOR SINE SERIES

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*Abstract.* In this paper a generalization of the Zahid's theorem for convergence and integrability for sine series (see [9]) is made by considering the class  $S_p(\delta)$ ,  $p > 1$  instead of  $S(\delta)$ .

*Mathematics subject classification (1991):* 26D15, 42A20.

*Key words and phrases:*  $\delta$ -quasi-monotone sequence, trigonometric series, Fourier series, Dirichlet kernel, Abel's transformation, Hölder inequality, Hausdorff-Young inequality.

### REFERENCES

- [1] BOAS, R. P., *Quasi-positive sequence and trigonometric series*, Proc. Lond. Math. Soc. **14** A (1965), 38–48.
- [2] DUREN, P. P. L., *Theory of  $H^p$  spaces*, Academic Press, New York, 1970.
- [3] FOMIN, G. A., *A class of trigonometric series*, Math. Notes **23** (1978), 117–124, (Russian).
- [4] FOMIN, G. A., *On linear method for summing Fourier series*, Mat. Sb. **66** (1964), 144–152, (Russian).
- [5] GARRETT, J.W. AND ČASLAV V. STANOJEVIĆ, *On  $L^1$  convergence of Fourier series with quasi-monotone coefficients*, Proc. Amer. Math. Soc. **72** (1978), 535–538.
- [6] GARRETT, J. W. AND ČASLAV V. STANOJEVIĆ, *Necessary and sufficient condition for  $L^1$  convergence of trigonometric series*, Proc. Amer. Math. Soc. **60** (1976), 68–71.
- [7] TELYAKOVSKII, S. A., *Concerning a sufficient condition of Sidon for the integrability of trigonometric series*, Math. Notes **14** (1973), 742–748, (Russian).
- [8] TOMOVSKI Ž., *An application of the Hausdorff-Young inequality*, Mathematical Inequalities & Applications **1**(4) (1998), 527–532.
- [9] ZAHID S. A. Z., *Integrability of trigonometric series*, Tamkang. J. Math. **21** (1990), 295–301.