

## ON WEIGHTED $\beta$ -ABSOLUTE CONVERGENCE OF DOUBLE FOURIER SERIES

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*Abstract.* In this paper, we obtain a sufficient condition for the weighted  $\beta$ -absolute convergence ( $0 < \beta < 2$ ) of the double Fourier series of a function  $f$  of  $(\phi, \psi)$ - $(\Lambda^1, \Lambda^2)$ -bounded variation.

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### REFERENCES

- [1] A. N. BAKHVALOV, *Fourier coefficients of functions from many-dimensional classes of bounded  $\Lambda$ -variation*, Moscow Univ. Math. Bulletin, 66 (1) (2011), 8–16.
- [2] K. N. DARJI AND R. G. VYAS, *On weighted absolute convergence of multiple Fourier series of a function of  $(p_1, \dots, p_N) - (\Lambda^1, \dots, \Lambda^N) - BV$* , Acta Math. Hungar., 156 (2) (2018), 361–371.
- [3] L. GOGOLADZE AND R. MESKHIA, *On the absolute convergence of trigonometric Fourier series*, Proc. Razmadze. Math. Inst., 141 (2006), 29–40.
- [4] F. MÓRICZ AND A. VERES, *Absolute convergence of multiple Fourier series revisited*, Anal. Math., 34 (2) (2008), 145–162.
- [5] F. MÓRICZ AND A. VERES, *On the absolute convergence of multiple Fourier series*, Acta Math. Hungar., 117 (3) (2007), 275–292.
- [6] M. SCHRAMM AND D. WATERMAN, *Absolute convergence of Fourier series of functions of class  $\Lambda BV^{(p)}$  and  $\varphi \Lambda BV$* , Acta Math. Acad. Sci. Hungar., 40 (3–4) (1982), 273–276.
- [7] P. L. UL'YANOV, *Series with respect to a Haar system with monotone coefficients* (in Russian), Izv. Akad. Nauk. SSSR Ser. Mat., 28 (1964), 925–950.
- [8] R. G. VYAS, *On the absolute convergence of Fourier series of functions of  $\Lambda BV^{(p)}$  and  $\varphi \Lambda BV$* , Georgian Math. J., 14 (4) (2007), 769–774.
- [9] R. G. VYAS AND K. N. DARJI, *On absolute convergence of multiple Fourier series*, Math. Notes, 94 (1) (2013), 71–81; Russian transl., Mat. Zametki, 94 (1) (2013), 81–93.
- [10] R. G. VYAS AND K. N. DARJI, *On multiple Fourier coefficients of functions of  $\phi - \Lambda$ -bounded variation*, Math. Inequal. Appl., 17 (3) (2014), 1153–1160.
- [11] R. G. VYAS AND K. N. DARJI, *Order of magnitude of multiple Fourier coefficients*, Anal. Theory Appl., 29 (1) (2013), 27–36.
- [12] R. G. VYAS AND J. R. PATADIA, *On the absolute convergence of Fourier series of functions of generalized bounded variations*, J. Indian Math. Soc., 62, (1–4) (1996), 129–136.