

THE LEBESGUE SUMMABILITY OF DOUBLE TRIGONOMETRIC INTEGRALS

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Abstract. We recall that the Lebesgue summability of trigonometric series (see [6]) or trigonometric integrals (see [4] and [2]) is defined in terms of the symmetric differentiability of the formally integrated series or integral, respectively. In the present paper we define the Lebesgue summability of double trigonometric integrals, and extend a previous theorem from single to double trigonometric integrals.

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REFERENCES

- [1] F. MÓRICZ, *On the uniform convergence of double sine integrals over \mathbb{R}_+^2* , Analysis, **31** (2011), 191–204.
- [2] F. MÓRICZ, *The Lebesgue summability of trigonometric integrals*, J. Math. Anal. Appl., **390** (2012), 188–196; Addendum, *ibidem* **403** (2013), 215–216.
- [3] A. PRINGSHEIM, *Zur Theorie der zweifach unendlichen Zahlenfolgen*, Math. Ann., **53** (1900), 289–321.
- [4] O. SZÁSZ, *On Lebesgue summability and its generalization to integrals*, Amer. J. Math., **67** (1945), 389–396.
- [5] J. VINDAS, *On the relation between Lebesgue summability and some other summation methods*, J. Math. Anal. Appl., **411** (2014), 75–82.
- [6] A. ZYGMUND, *Trigonometric Series*, Cambridge Univ. Press, 1959.