

On some properties of double conjugate trigonometric Fourier series

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A theorem of Ferenc Lukacs states that the partial sums of conjugate Fourier series of periodic Lebesgue integrable function f diverge by logarithmic rate at the points of discontinuity of the first kind of f .

With connection to this result in one dimension case there are several analogous results by authors: R. Riad; F. Moricz; M. Pinski; P. Zhou, Y. Dansheng.

F. Mricz investigated Lukacs's theorem for double conjugate trigonometric Fourier series. Namely he proved that the rectangular partial sum of the double conjugate trigonometric Fourier series diverge by the rate of multiplying of logarithms.

He generalized the theorem in terms of a Abel-Poisson means, he proved that generalized jump of a function can be determined by mixed partial derivatives of the Abel-Poisson mean of double conjugate trigonometric Fourier series.

The aim of this note is to generalize F. Moricz's mentioned theorem; Also consider an analogous theorems in terms of generalized Cesaro means, introduced by Akhobadze and regular linear means.