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Tauberian theorems for statistically convergent double sequences

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Abstract

In [F. Moricz, Tauberian theorems for Cesàro summable double sequences, Studia Math. 110 (1994) 83-96], Moricz has proved some Tauberian theorems for Cesàro summable double sequences and deduced the Tauberian theorems of Landau [E. Landau, Über die Bedeutung einiger neuerer Grenzwertsätze der Herren Hardy and Axer, Prac. Mat.-Fiz. 21 (1910) 97-177] and Hardy [G.H. Hardy, Divergent Series, Univ. Press, Oxford 1956] type. In [J.A. Fridy, M.K. Khan, Statistical extension of some classical Tauberian theorems, Proc. Amer. Math. Soc. 128 (2000) 2347-2355], Fridy and Khan have given statistical extensions of some classical Tauberian theorems. The concept of statistical convergence for double sequences has recently been introduced by Mursaleen and Edely [M. Mursaleen, Osama H. H. Edely, Statistical convergence of double sequences, J. Math. Anal. Appl. 288 (2003) 223-231] and by Moricz [F. Moricz, Statistical convergence of multiple sequences, Arch. Math. 81 (2003) 82-89] independently. In this paper we give some Tauberian theorems for statistically convergent double sequences. We have also provided some examples including an example to Problem 1 of Moricz [F. Moricz, Tauberian theorems for Cesàro summable double sequences, Studia Math. 110 (1994) 83-96].

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Convergence in Pringsheim's sense; Double sequence; Statistical convergence; Summability C 11, C10 and C01; Tauberian condition

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