Journal of Applied Probability & Statistics Vol. **4**, No. 1, 105–114

Stochastic Ordering and Approximation at Discontinuity by Fourier Series

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Abstract

Let $S_n(f,x)$ denote the partial sums of Fourier series of a 2π-periodic integrable function f over $[-\pi,\pi]$. If $H_\Phi = (h_{nk})$ is a Hausdorff summability method generated by the weight function $\Phi(t)$, by using some results from the stochastic ordering of beta random variables, we provide the absolute rate of convergence of the transform $(H_\Phi S)_n$, when f is $BV[-\pi,\pi]$. Our results show that the rate of convergence is affected by the total variation of the rows of the summability method H_Φ.

Keywords: Approximation, discontinuity, Fourier series, rates of convergence, stochastic ordering.

2000 Mathematics Subject Classification: 60E15, 42A61, 42A24.

The research of the first author was partially supported by a Ohio Board of Regents research grant.