

In der

AG STOCHASTIK

spricht am Dienstag, den 27. Juli 2010, um 15.45 Uhr

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über das Thema

AN ASYMPTOTICALLY MODEL-CHECK FOR LINEAR REGRESSION BASED ON SET-INDEXED RESIDUAL PARTIAL SUMS PROCESSES AND ITS APPLICATION TO SPATIAL DATA

Abstract: We establish a functional central limit theorem for a sequence of set-indexed partial sums processes of the least squares residuals of observations obtained from a spatial linear regression model. For the proof of the result we apply the central limit theorem of Alexander and Pyke (1983) and generalize the geometrical approach due to Bischoff and Somayasa (2009) to a partial sums indexed by sets. It is shown that the limit process is a projection of the Brownian sheet indexed by sets onto the reproducing kernel Hilbert space of this process. For that we define the projection by means of Choquet integral instead of integration by parts of the Riemann-Stieltjes integral on a plane considered in Bischoff and Somayasa (2009). An application of this result to a test of hypothesis concerning the appropriateness of a spatial linear regression model is also discussed by considering the Mercer and Hall Wealth-Yield data (Cressie 1993, p. 454-455) as an example.

Keywords : *set-indexed partial sums, spatial least squares residuals, set-indexed Brownian sheet, Choquet-integral*

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