

Limit theorems for Banach-valued autoregressive processes

Applications to real continuous time processes

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Abstract

We show that a large class of continuous time processes admits a Banach autoregressive representation. This fact allows us to obtain various limit theorems for continuous time processes. In particular we prove the law of iterated logarithm for processes which satisfy a stochastic differential equation.

Résumé

Nous montrons qu'une vaste classe de processus à temps continu possède une représentation autorégressive Banachique. Ceci nous permet d'obtenir des théorèmes limites pour les processus réels à temps continu. Par exemple nous établissons la loi du logarithme itéré pour des processus vérifiant une équation différentielle stochastique.

1 Introduction

The well known interpretation of a continuous time process as a random variable which takes values in a functional space is scarcely used in statistical inference except, for example, as an auxiliary tool in statistics for diffusion processes (see, e.g., LIPTSER and SHIRYAYEV (1977), KHASMINSKII and SKOROKHOD (1996)).

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