RECITS Seminar

Wednesdays from 10 a.m. to 11 a.m.
Seminar room, CAM building
Faculty of Mathematics, USTHB.

Wednesday 02 October 2024

Speaker: Fayçal HAMDI, STEP Team, RECITS Laboratory

Title: On periodic *logGARCH* model: Stationarity, existence of moments and autocorrelation structure

Abstract

To address the combined dynamics of volatility evolution and periodicity observed in the autocorrelation structure of numerous nonlinear time series, we present the Periodic log-Generalized Autoregressive Conditional Heteroscedastic (*P-logGARCH*) model. We study certain probabilistic properties of this model, particularly focusing on its strict and second-order periodic stationarity, and establish conditions for the existence of higher-order moments. Furthermore, we investigate the autocovariance structure of the squares and higher-order powers of the *P-logGARCH* process, revealing its dynamic properties consistent with empirical observations in financial time series. Finally, we present empirical evidence by applying the *P-logGARCH* model to analyze real-world data, demonstrating its practical relevance.

Keywords:

Periodic *logGARCH* model, strict periodic, stationarity, higher-order moments, autocorrelation function.