

Lévy based growth models

Kristjana Ýr Jónsdóttir, Jürgen Schmiegel and Eva B. Vedel Jensen
*Thiele Centre for Applied Mathematics in Natural Science,
Aarhus University,
DK-8000 Aarhus, Denmark*

Abstract

In the present paper, we give a condensed review for the non-specialist reader of a new modelling framework for spatio-temporal processes, based on Lévy theory. We show the potential of the approach in stochastic geometry and spatial statistics by studying Lévy based growth modelling of planar objects. The growth models considered are spatio-temporal stochastic processes on the circle. As a bi-product, new flexible models for space-time covariance functions on the circle are provided. An application of the Lévy based growth models to tumour growth is discussed.