

On limit laws of multi-dimensional stochastic synchronization models

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Abstract

Lévy processes and related fine analytic properties of probability distributions such as *infinite divisibility or stability* play an important role in construction of stochastic models of various distributed networks (e.g., local clock synchronization, opinion dynamics). At the same time they are also interesting for a variety of physical models, e.g., for systems based of the so-called Lévy random walks (Lévy flights) or for systems formulated in the framework of free (noncommutative or quantum) probability.

Nevertheless, little is known about limit probability laws resulted from the long time behavior of such stochastic systems. In this talk we will focus on classification of limit laws which arise in models with some special network topologies.

Keywords: synchronization models, stochastic particle systems, Laplace transform