

A point process can be easily described as a random locally finite set. For example, we can model locations of arbitrary events in a city or in the world such as earthquake epicenter locations. In this thesis, we introduce basic types of point processes in a Euclidean space and on a sphere, describe what situations can be modelled by them, define basic properties, and lay down theoretical groundwork for the K -function (and its modifications for marked point processes). The main goal of this thesis is to introduce marked point processes on a sphere and to give theoretical framework, whereas the marks will give us another nontrivial information about the points, which we want to study further. In the conclusion of the thesis, we concern ourselves with testing whether those marks are mutually independent. We apply Monte Carlo permutation test using mark-weighted K -function for marked point processes on a sphere.