

Abstract

In this thesis we consider the geometric probability problem of covering a circle with random arcs. We randomly place arcs of a fixed length on a circle of unit circumference. First we find the probability of covering the entire circle with a finite number of arcs of the same length and show some of its numerical values. Next we study the random variable describing the size of the covered part of the circle and the expected number of arcs needed to fully cover the circle if we place the arcs sequentially. Finally, we solve a similar problem of covering the circle by a countably infinite number of arcs of different lengths.