

## **Coverage of space by random sets**

Rahul Roy, *Indian Statistical Institute, New Delhi.*

Abstract: A cube of random size is placed at a point of a Poisson point process in the  $d$ -dimensional quadrant of a Euclidean space. We study the distribution required of the size of the cube vis-a-vis the density of the Poisson point process so as to ensure that an isomorphic copy of the quadrant is completely covered by the union of the cubes.

In the 1-dimensional case, this coverage study is equivalent to studying the busy period of a queue. A phase transition obtained in this 1-dimensional case may be employed for a statistical study of the number of servers required to manage queues when the service time has a heavy-tailed distribution.