1077-57-985 **Rafal Komendarczyk** and **Jeffrey Pullen*** (jpullen@tulane.edu), Mathematics Department, Tulane University, 6823 St. Charles Ave, New Orleans, LA 70118. *Finite Coverage Processes and Homology of Random Sets.* Preliminary report.

We address the issue of obtaining the probability of complete coverage for a given domain by a finite coverage process with compact convex grains. In the process, we define homology of a random compact set S and consider a random simplicial complex corresponding to the nerve of a random covering. This allows us to determine the distributions of random Betti numbers as well as the Euler characteristic of S. Armed with these notions, we address the probability of complete coverage of domains which have a homotopy type of a simplicial complex which has potential applications in the area of sensor networks. (Received September 15, 2011)