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Nota di contenuto Device locations (Poisson point processes) -- coverage and connectivity (the Boolean model) -- interference -- estimates for probabilities of events of bad service quality (large deviations) -- malware propagation (the contact process). .

Sommario/riassunto Probabilistic modeling and analysis of spatial telecommunication systems have never been more important than they are today. In particular, it is an essential research area for designing and developing next-generation communication networks that are based on multihop message transmission technology. These lecture notes provide valuable insights into the underlying mathematical discipline, stochastic geometry, introducing the theory, mathematical models and basic concepts. They also discuss the latest applications of the theory to telecommunication systems. The text covers several of the most fundamental aspects of quality of service: connectivity, coverage, interference, random environments, and propagation of malware. It especially highlights two important limiting scenarios of large spatial systems: the high-density limit and the ergodic limit. The book also features an analysis of extreme events and their probabilities based on the theory of large deviations. Lastly, it includes a large number of exercises offering ample opportunities for independent self-study.