

## Utility maximization in nonconvex wireless systems

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### Abstrak

This monograph develops a framework for modeling and solving utility maximization problems in nonconvex wireless systems. The first part develops a model for utility optimization in wireless systems. The model is general enough to encompass a wide array of system configurations and performance objectives. Based on the general model, a set of methods for solving utility maximization problems is developed in the second part of the book. The development is based on a careful examination of the properties that are required for the application of each method. This part focuses on problems whose initial formulation does not allow for a solution by standard methods and discusses alternative approaches. The last part presents two case studies to demonstrate the application of the proposed framework. In both cases, utility maximization in multi-antenna broadcast channels is investigated.