

# **Applications of Large-Dimensional Random Matrix**

## **Methods in Wireless Communications**

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### **Abstract**

Exact analysis for system performances of some complex wireless systems could be difficult and for some models unsolvable. In the last few years, large-system approaches has emerged as a means to circumvent the mathematical difficulties, greatly motivated by the landmark contributions of Verdú–Shamai and Tse–Hanly using large-dimensional random matrix theory (RMT) to various problems in information theory. Since then, a large body of performance analyses of various wireless channels were obtained by large-dimensional random matrix tools. In this talk, I will provide an introduction to show how large-dimensional RMT can be used to tackle a variety of problems in wireless communications.