The Tail Behaviors of Statistics from Heterogeneous Samples with Applications

Abstract: The heterogeneous samples have attracted much attention in recent years due to their interesting applications in many areas. However, due to the complicated distribution theory, little attention has been paid to the tail behaviors of statistics from heterogeneous samples. In this talk, we will discuss the tail behaviors of two popular statistics, order statistics and convolutions (or weighted sums), from heterogeneous samples. The results show that the heterogeneity leads to the high tail probability of the statistics. The applications in reliability, economics and actuarial science are highlighted as well.