DIVISION OF STATISTICS
Colloquium

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TITLE: **Stochastic comparison of elliptical random vectors with applications**

DATE: **Friday November 4, 2016**
TIME: **2:00 p.m.**
PLACE: **DUSABLE HALL 212**

Abstract

Stochastic comparison of random variables (vectors) has attracted much attention recently due to its wide applications in many diverse areas of probability and statistics, which include insurance, actuarial science, reliability theory, biology, economics, operations research, and management science. Elliptical distributions are generalizations of the multivariate normal distribution and, therefore, share many of its tractable properties. This class of distributions which was introduced by Kelker and further discussed by Fang et al., allows for the presence of heavy tails and asymptotic tail dependence. It is natural to compare two elliptically distributed random variables (vectors) by some stochastic orders. However, it remains an interesting open problem whether necessary and sufficient conditions exist for stochastic ordering of multivariate elliptical distributions. In this talk, we provide sufficient and/or necessary conditions for classifying multivariate elliptical random vectors according to the convex ordering and the increasing convex ordering. The results could be used for reducing dimensions in directed inference for multivariate ordered distributions.