

DEPARTMENT OF STATISTICS COLLOQUIUM SERIES

Texas A&M University

**ANINDYA ROY**

Graduate Program Director, Statistics  
Department of Mathematics and Statistics  
University of Maryland, Baltimore County

**PREDICTING FALSE DISCOVERY PROPORTION USING  
MIXTURE MODELS**

**ABSTRACT:**

We present a flexible framework for estimating error measures in multiple testing problems. Our approach is based on modeling p-value distributions under transformed scale by mixtures of skewed distributions. The model can incorporate dependence among p-values and also allows for shape restrictions on the p-value density. A nonparametric Bayesian scheme for estimating the components of the mixture model is outlined. The Bayesian scheme allows us to predict the false discovery proportion for a given sample. An expression for the positive false discovery rate is given which can be used for estimation under certain dependence structures among p-values.

**DATE:** Thursday, September 24, 2009

**TIME:** 11:10 a.m. – 12:10 p.m.

**PLACE:** Room 150, Blocker

Refreshments will be served in the Statistics Conference Room at 10:30 am for those attending the seminar.