

WICHITA STATE UNIVERSITY  
Department of Mathematics and Statistics

*The Lecture Series in the  
Mathematical Sciences Presents Our Guest:*

Prof. Hari Mukerjee  
Wichita State University

*"Use of Peakedness in Nonparametric Inference"*

Abstract:

In common practice one compares the dispersions of two random variables about their respective means by comparing their variances. However, this one-point summary of dispersion does not provide much information about the concentration of probabilities around their means. A more useful concept is that of peakedness. A random variable  $X$  with mean  $\mu$  is said to be less peaked than the random variable  $Y$  with mean  $\nu$  if  $P(|X - \mu| \leq x) \leq P(|Y - \nu| \leq x)$  for all  $x \geq 0$ . An ordering of variances implies the corresponding ordering of peakedness for normal distributions,  $t$ -distributions, exponentials, and some other common parametric families of distributions. In this paper we propose the use of the peakedness ordering in a nonparametric setting when the assumption of such an ordering is reasonable. El Barmi and Rojo (1997) considered this problem when the observations are grouped into multinomial cells symmetric about 0. We consider the problems of estimation and testing when  $X$  and  $Y$  are continuous.

This is joint work with Hammou El Barmi.

Friday, September 27, 2002  
3:00 PM in 372 Jabara Hall

*Please come join us for refreshments before the lecture  
at 2:30 p.m. in room 353 Jabara Hall.*