

# MATHEMATICS & STATISTICS COLLOQUIUM ANNOUNCEMENT

Thursday, March 8, 2007  
4:00 p.m.  
ARTS 214

## **SPEAKER**

Rajesh Pereira  
University of Saskatchewan

## **TITLE**

*Majorization, Matrices and the Roots of Polynomials*

## **ABSTRACT**

We examine the connections between the majorization order, matrix theory and the geometry of polynomial root sets. We will describe some of the classical results and applications of majorization as well as some recent results involving majorization and the roots of polynomials (such as the solution of the De Bruijn-Springer conjecture, and an improvement to Mahler's inequality). The concept of a trace vector of a matrix will be introduced and then used to give a natural matrix theoretical interpretation of the critical points of a characteristic polynomial. If time permits, we will also discuss an application of majorization to the fastest mixing Markov chain problem of Boyd, Diaconis and Xiao.

Coffee and Cookies at 3:30 pm in the lounge.