

**MATHEMATICS AND STATISTICS  
COLLOQUIUM ANNOUNCEMENT**

Friday, March 20, 2009  
3:30 to 4:30 PM  
ARTS 214

**SPEAKER**

Prof. Harry Joe  
Department of Statistics  
University of British Columbia

**TITLE:**

*Generating random correlation matrices based on partial  
correlation vines and the onion method.*

**Abstract:**

Partial correlation vines and the onion method are presented for generating random correlation matrices. As a special case, a uniform distribution over the set of  $d \times d$  positive definite correlation matrices obtains. Some applications will be mentioned.

Byproducts are: (a) For a uniform distribution over the space of  $d \times d$  correlation matrices, the marginal distribution of each correlation is Beta  $(\frac{d}{2}, \frac{d}{2})$  on  $(-1, 1)$ . (b) An identity is obtained for the determinant of a correlation matrix  $R$  via partial correlations on a vine. (c) A formula is obtained for the volume of the set of  $d \times d$  positive definite correlation matrices in  $\frac{d(d-1)}{2}$  dimensional space.