

APPLIED MATHEMATICS SEMINAR
Department of Mathematics
University of West Georgia
4:00 PM, WEDNESDAY, SEPTEMBER 24, 2008, BOYD 304

Speaker: Dr. Vu Kim Tuan, UWG

Title: **The Selberg Integral**

Abstract

This is an expository talk on the famous Selberg integral

$$\int_0^1 \cdots \int_0^1 \prod_{i=1}^n t_i^{\alpha-1} (1-t_i)^{\beta-1} \prod_{1 \leq i < j \leq n} |t_i - t_j|^{2\gamma} dt_1 \cdots dt_n \\ = \prod_{j=0}^{n-1} \frac{\Gamma(\alpha + j\gamma)\Gamma(\beta + j\gamma)\Gamma(1 + (j+1)\gamma)}{\Gamma(\alpha + \beta + (n+j-1)\gamma)\Gamma(1 + j\gamma)},$$

that aim at non-experts and students. We show how the Selberg integral was used to prove an outstanding conjecture in random matrix theory and cases of the Macdonald conjectures. The talk is based on the paper "The Importance of the Selberg Integral" (Bull. Amer. Math. Soc. 45(2008), October, No. 4, p. 489-534) by P.J. Forrester and S.O. Warnaar.

All are welcome.