

# STATISTICS COLLOQUIUM

WEDNESDAY, JANUARY 27, 2010

TALK: 4:00 PM — SCIENCE CENTER ROOM 705

RECEPTION: 5:15 PM — SCIENCE CENTER, 7TH FLOOR

**“Estimation of convex-transformed densities”**

**Arseni V. Seregin**

Ph.D. Student

Department of Statistics

University of Washington

## ABSTRACT

A convex-transformed density is a quasi-concave (or a quasi-convex) density which is a composition of a fixed monotone transformation and a convex function. Many parametric and non-parametric families of densities can be included in a suitable family of convex-transformed densities: normal, gamma, beta, Gumbel and other log-concave densities, multivariate Pareto, Burr, Student, Snedecor etc.

We will discuss the role of convexity in shape constrained density estimation then introduce classes of convex-transformed densities and present our results related to estimation of a convex-transformed density: structure, existence and consistency of the maximum likelihood estimator, and asymptotic minimax lower bounds for estimation.