Auburn Montgomery

Department of Mathematics

Colloquium/$\mathcal{MAMS}$

Time: Friday, March 04, 2011, 2:00am–3:00pm

Place: Auburn Montgomery, Goodwyn Hall, Room 202

Speaker: Professor Der-chen Chang, Department of Mathematics, Georgetown University

Title: Subelliptic PDEs and subRiemannian geometry

Abstract: In this talk, we propose a structure for inverse kernels—fundamental solutions, heat kernels, etc.—of second order partial differential operators given as sums of squares of vector fields. The formulas are built from invariants of the underlying geometry induced by the given vector fields. We shall assume that brackets of these vector fields yield the tangent space, thus Chow's theorem gives a distance function and a subRiemannian geometry. The main object of interest is a complex distance, parametrized by the characteristic variety, whose critical points along the characteristic variety yield geodesics. We shall illustrate these ideas by examples.

****Refreshments will be served at 10:30am****