

Meeting: 1002, Pittsburgh, Pennsylvania, chang,

1002-35-1 **Der-Chen Chang***, Georgetown University. *Geometric analysis on a class of degenerate elliptic operators.*

In this talk, I shall discuss the geometry induced by a class of second-order subelliptic operators. This class contains degenerate elliptic and hypo-elliptic operators (such as the Heisenberg Laplacian and the Grusin operator). Given any two points in the space, the number of geodesics and the lengths of those geodesics are calculated. We also find the modified complex action function and show that the critical points of this function will recover the lengths of the corresponding geodesics. The fundamental solutions for those operators are explicitly computed in terms of this action. (Received November 19, 2003)