Meeting: 1002, Pittsburgh, Pennsylvania, SS 12A, Special Session on Geometric Analysis and Partial Differential Equations in Subelliptic Structures

1002-35-119   **Xiaoping Yang*** (`yangxp@mail.njust.edu.cn`), Department of Mathematics, School of Sciences, Nanjing University of Science & Technology, 210094 Nanjing, Jiangsu, Peoples Rep of China. *On Regularity of Some Convex Functions in Carnot Groups.* Preliminary report.

In this talk, we introduce h-quasiconvex functions and h-semiconvex functions in Carnot groups. We show that notions of h-semiconvex functions and h-convex sets are equivalent in some sense and give some estimates of first derivatives of h-quasiconvex functions. For a Carnot group G of step two, we prove that h-quasiconvex functions are locally bounded from above, as a result, we obtain that h-quasiconvex functions are locally Lipschitch continuous by using recent results by Magnani. We also discuss some properties of sub-differentials for h-convex functions in Carnot groups which are related to singularities of such functions. These results are my joint work with Mingbao Sun. (Received September 10, 2004)