Abstract

D. Jerison and J. M. Lee (JAMS 1988) found a three-dimensional family of differential identities for critical exponent equation on Heisenberg group H^n by using computer. They also care about whether there exists a theoretical framework that would predict the existence and the structure of such furmulae. In this talk we answer the question with the help of dimensional conservation and invariant tensors. Then we generalize the Jerison-Lee identities in Cauchy-Riemann(CR) manifold on subelliptic equations. Several new types of identities on CR manifold are found and these identities are used to get the rigidity result for a class of CR Lane-Emden equation in subcritical case, rigidity means that the subelliptic equation has no other solution than some constant at least when a parameter is in a certain range. The rigidity result also deduces the sharp Folland-Stein inequality on closed CR manifold. This is the joint work with Qianzhong OU, AND Tian WU.