VANISHING THEOREMS FOR DIFFERENTIAL FORMS AND LIOUVILLE THEOREMS OF p-HARMONIC MAPS WITH INFINITE q-ENERGY ON CURVED MANIFOLDS WITH POINCARE-SOBOLEV INEQUALITY

LINA WU

BMCC OF CITY UNIVERSITY OF NEW YORK

ABSTRACT. In this talk, we will explore the extension of the Liouville-type theorems and vanishing theorems from the finite q-energy to the infinite q-energy. We will study closed and p-pseudoclosed differential forms ω. We will also study p-harmonic maps u and their relations with ω. In particular, the following research findings will be explained:

- Vanishing Theorem of ω on the curved manifold M with one sign of curvature in the context of non-negative Ricci curvature

- Vanishing Theorem of ω on the curved manifold M with the mixed curvature sign in the presence of Poincaré-Sobolev Inequality

- Liouville Theorems of u from the domain M with the mixed curvature sign to the non-positively curved target N

This is my joint research work with Shihshu Walter Wei.