

1115-53-30

Peng Wu* (wupenguin@math.cornell.edu). *A Weitzenbock formula for canonical metrics on four-manifolds and applications.*

The Weitzenbock formula plays a key role in the classification of Einstein four-manifolds with positive curvature. In this talk we will first discuss a new proof of the Weitzenbock formula for Einstein metrics using Berger curvature decomposition, then establish a unified framework for the Weitzenbock formula for a large class of canonical metrics on four-manifolds, which are called generalized m -quasi-Einstein metrics (or "Einstein metrics" for smooth metric measure spaces, including for example gradient Ricci solitons, quasi-Einstein metrics, and conformally Einstein metrics). As applications we will discuss several rigidity theorems for four-dimensional Einstein manifolds, conformally Einstein manifolds, gradient Ricci solitons, and quasi-Einstein manifolds. (Received August 09, 2015)