RUTGERS
UNIVERSITY | NEWARK

Mathematics Colloquium

Calabi-Yau manifolds with conical singularities

Hans-Joachim Hein (Fordham University)

Abstract

Yau's solution to the Calabi conjecture provided the first known examples of compact Riemannian manifolds with zero Ricci curvature that are not flat, i.e. not isometric to a quotient of a Euclidean space by a discrete group of Euclidean motions. The underlying topological manifolds of Yau's examples are actually complex algebraic. A typical example would be a smooth complex hypersurface of degree $n+2$ in $\mathbb{C}P^{n+1}$. We prove an extension of Yau's theorem that produces compact Riemannian spaces with zero Ricci curvature and with isolated conical singularities. For example, the underlying algebraic space could now be a singular degree $n+2$ hypersurface of $\mathbb{C}P^{n+1}$ with at worst ordinary double points. Joint work with Song Sun.

Wednesday, 2 November 2016, 4pm

Smith Hall 204

Tea and refreshments will be served at 3:45pm.