

Séminaire d'algèbre, topologie et géométrie
Jeudi 12 janvier à 14h
Salle de conférences

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*On projective manifolds with semi-positive holomorphic
sectional curvature*

It is known that projective manifolds with certain "non-negative curvature" are decomposed into positively curved manifolds and flat manifolds in a suitable sense. Here "non-negative curvature" are formulated by various notions : holomorphic bisectional curvatures, nef tangent bundles, nef anti-canonical divisors, and so on. In this talk, after I review some decomposition theorems, I explain the geometry of projective manifolds with semi-positive holomorphic sectional curvature. I first show that, if X has positive holomorphic sectional curvature, then X is rationally connected, that is, arbitrary two points can be connected by a rational curve (the image of $\mathbb{C}P^1$ by a holomorphic map). This result gives a generalization of Yau's conjecture (which was proved by Heier-Wong and Yang). Moreover, I show that if X has semi-positive holomorphic sectional curvature, X admits a locally trivial morphism from X to Y such that the fiber F is rationally connected and the base Y is a flat manifold. The proof depends on the theory of holomorphic foliations, MRC fibrations, and singular Hermitian metrics.