

Séminaire d'algèbre, topologie et géométrie
Jeudi 13 octobre à 14h
Salle Fizeau

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Saarbrücken

The Nonvanishing problem for varieties with nef anticanonical bundle

Let X be a complex projective threefold with mild singularities. The result of Miyaoka from the 80s showed that if the canonical bundle K_X is nef, then some multiple of K_X is effective. In this talk, we will discuss an analogous result for the anticanonical bundle $-K_X$, which is the semipositive curvature counterpart of Miyaoka's result towards the Nonvanishing problem. We will prove the following Nonvanishing result : if $-K_X$ is nef, then the numerical class of $-K_X$ is effective.

In the first part of the talk, we will present some examples of surfaces with nef anticanonical bundle and explain a structure theorem for projective varieties with mild singularities and nef anticanonical bundle. In the second part of the talk, we will discuss some applications of the structure theorem ; in particular, the theorem reduces our Nonvanishing result to the case of rationally connected varieties. We will then focus on this case and give a sketch of proof of our Nonvanishing result. This is joint work with Vladimir Lazić, Shin-ichi Matsumura, Thomas Peternell and Nikolaos Tsakanikas.