

Abstract

In this talk, we are mainly concerned with the geometry of rational curves on algebraic varieties. Our main object of study is rationally connected varieties, a kind of varieties that contain “plenty” of rational curves. It was shown by Kollár-Miyaoka-Mori that a kind of “smoothing of comb” technique is available on this kind of varieties. We firstly show a most general form of this kind of “smoothing of comb” technique exists, which extends all the “smoothing of comb” techniques in the literature before. Then we apply this generalized technique to study the geometry of forgetful maps between moduli spaces of stable maps and twisted stable maps to rationally connected varieties. As a result, we solve several open questions on topology, geometry and arithmetic of rationally connected varieties.