Birational Geometry Reading Notes Summer 2024

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Yi Li

1 Introduction

The aim of this note is to prove the theorem of Angehrn and Siu. The theorem gave a quadratic result for global generation of the adjoint bundle. The major difficulty in the proof of the theorem is how to construct an effective $\mathbb{Q}$-divisor D s.t. (a) the log canonical threshold $\mathrm{LCT}(D, x) = 1$, and (b) x is the isolated point the LC locus. Once we successfully construct such divisor D, the proof easily follows by appling the Nadal vanishing theorem to the exact sequence associated to the multiplier ideal sheaf $\mathcal{J}_D$.

This note is organized as follows: In Section 2. we will state the main theorem with some applications. In Section 3. we will summarize the technical tools needed in the proof. In Section 4. we will prove the main results. We end this note by showing some further development after Angehrn and Siu.

2 Statement of the theorem

3 Technical tools

4 Proof of the theorem

5 Further remarks