Cone Theorem Readings Notes Spring 2024

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In this note, we will give a proof of Cone theorem for Kähler MMP. The major reference of this note are [HP24], [HP16] and [DH24].

Let us first state the theorem that we want to prove.

Theorem 0.1. Let $(X, B+\beta)$ be a generalized KLT pair. Assume the BDPP conjecture holds, then $K_X + B + \beta$ is metrically nef iff it's numerical nef.

Theorem 0.2. Let $(X,)$

Contents

1 Höring-Peternell's approach to the cone theorem for Kähler 3-folds

2 Das-Hacon's approach to cone theorem for DLT Kähler 3-folds

3 Kawamata's subadjunction for Kähler variety

The major technical tool used in the

4 Hacon-Păun's approach to cone theorem in any dimension

References

[DH24] O. Das and C.D. Hacon. *On the Minimal Model Program for Kähler 3-folds*. 2024. arXiv: 2306.11708 [math.AG].

[HP24] C.D. Hacon and M. Păun. *On the Canonical Bundle Formula and Adjunction for Generalized Kaehler Pairs*. 2024. arXiv: 2404.12007 [math.AG].

[HP16] A. Höring and T. Peternell. "Minimal models for Kähler threefolds". In: *Invent. Math.* 203.1 (2016), pp. 217–264.