

A REPORT FOR THE PAPER "FANO MANIFOLDS WITH NEF TANGENT BUNDLES ARE WEAKLY ALMOST KE"

Let X be a Fano manifold with nef tangent bundles. Campana-Peternell conjectured that X is a rational homogeneous manifold. In particular, it admits conjecturally a Kähler-Einstein metric. The paper under review proves that X possesses approximate Kähler-Einstein metrics, in a weak sense. As an application, the author proved some stability and a Guggenheimer-Yau-Bogomolov-Miyaoka inequality of X under some reasonable assumptions.

The paper is very interesting and provides a new approach to study the Fano manifolds with nef tangent bundles. It gives also more evidences for the Campana-Peternell conjecture. Therefore, I strongly recommend it for publication.

Let me now describe some minor typos that I discovered while reading the paper:

1. In the statement of Thm 1.1, could you give more precise meaning of "converges weakly to T as $\epsilon \rightarrow 0$ uniformly for all T ".

2. In page 4, line -7, $\omega_\epsilon^{n-1}\omega_\epsilon^{n-1}$ should be replaced by ω_ϵ^{n-1} .

3. In the page 4, line -4, under the assumption $(**)^p$, it seems that the second inequality can be more precisely taken as an equality, namely

$$\dots \lim_{\epsilon \rightarrow 0} \frac{1}{n} \int_X \sum_{j=1}^r \rho_{n-r+j, \epsilon} \omega_\epsilon^n = \lim_{\epsilon \rightarrow 0} \frac{r}{n^2} \int_X \sum_{j=1}^n \rho_{j, \epsilon} \omega_\epsilon^n \dots$$