

Demailly, Jean-Pierre

Singular Hermitian metrics on positive line bundles. (English) [Zbl 0784.32024](#)

Complex algebraic varieties, Proc. Conf., Bayreuth/Ger. 1990, Lect. Notes Math. 1507, 87-104 (1992).

[For the entire collection see [Zbl 0745.00049](#).]

We quote the author's abstract: "The notion of a singular Hermitian metric on a holomorphic line bundle is introduced as a tool for the study of various algebraic questions. One of the main interests of such metrics is the corresponding L^2 vanishing theorem for $\bar{\partial}$ cohomology, which gives a useful criterion for the existence of sections. In this context, numerically effective line bundles and line bundles with maximum Kodaira dimension are characterized by means of positivity properties of the curvature in the sense of currents. The coefficients of isolated logarithmic poles of a plurisubharmonic singular metric are shown to have a simple interpretation in terms of the constant ε of Seshadri's ampleness criterion. Finally, we use singular metrics and approximations of the curvature current to prove a new asymptotic estimate for the dimension of cohomology groups with values in high multiples $\mathcal{O}(kL)$ of a line bundle L with maximum Kodaira dimension".

Reviewer: [E.J.Straube \(College Station\)](#)

MSC:

[32L05](#) Holomorphic bundles and generalizations

Cited in **14** Reviews
Cited in **103** Documents

Keywords:

[plurisubharmonic weights](#); [singular Hermitian metric](#); [holomorphic line bundle](#); [vanishing theorem](#); [cohomology](#)