

If $p = 1$, locally $T = \frac{\sqrt{-1}}{2} \sum t_{ij} dz_i \wedge d\bar{z}_j$ and
 $\eta = (\sum \lambda_i dz_1 \wedge \dots \wedge d\hat{z}_i \wedge \dots \wedge dz_n) \sqrt{\alpha}$, $\alpha \geq 0$

$$\Rightarrow T(\eta \wedge \bar{\eta}) = T(\alpha \lambda_i \bar{\lambda}_j d\hat{z}_i \dots d\hat{\bar{z}}_j \dots) = \lambda_i \bar{\lambda}_j T(\alpha \dots d\hat{z}_i \dots d\hat{\bar{z}}_j \dots) = \lambda_i \bar{\lambda}_j t_{ij}(\alpha) \left(\frac{\sqrt{-1}}{2}\right)^{-(n-1)} C_n^{-1}$$

$$\Rightarrow C_n \left(\frac{\sqrt{-1}}{2}\right)^{n-1} T(\eta \wedge \eta') = \sum \lambda_i \bar{\lambda}_j t_{ij}(\alpha) \geq 0 \text{ for all } \alpha \geq 0.$$

See P 66 Definition Lelong \Rightarrow

Examples

1. Let $Z \subset M$ be a codimension- p analytic subvariety with $Z^* = Z - Z_s$ the set of smooth points. In the subsection on calculus on complex manifolds in Section 2 of Chapter 0 we proved what, in the language of currents, amounts to the assertion that the map

$$\varphi \longmapsto \int_{Z^*} \varphi, \quad \varphi \in A_c^{n-p, n-p}(M),$$

defines a closed, positive current T_Z . This example is of fundamental importance.

$$\mathbb{R} \quad \dim Z^* = n-p. \quad T_Z(\varphi) = \int_{Z^*} \varphi$$

$$\overline{T_Z(\varphi)} = \overline{\int_{Z^*} \varphi} = \int_{Z^*} \bar{\varphi} = T_Z(\bar{\varphi})$$

$\Rightarrow T_Z$ is real.