ABOUT THE VALUE DISTRIBUTION OF HOLOMORPHIC MAPS INTO THE PROJECTIVE SPACE

BY

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A First Main Theorem for holomorphic maps into the projective space was established in [10]. As an application, an equidistribution theorem for open holomorphic maps of maximal order was obtained. These results shall be extended to arbitrary order s. On a Stein manifold, they assume a special elegant form:

Let M be a non-compact, connected Stein manifold of dimension m. Let $h: M \to \mathbf{R}$ be a non-negative function of class C^∞ on M such that its Levi form (2) $\chi_1 = d^\perp dh$ is positive definite on M and such that for every $r > 0$ the open set $G_r = \{z \mid h(z) < r\}$ is not empty and relative compact. Such a function h exists on M if and only if M is a Stein manifold. Obviously, χ_1 is the exterior form of a Kaehler metric on M. Define $\chi_0 = 1$ and for s in $1 \leqslant s \leqslant m$ define

$$\chi_s = \frac{1}{s!} \chi_1 \wedge \ldots \wedge \chi_1$$

s-times.

Let V be a complex vector space of dimension $n+1 > 1$. Take a hermitian metric on V. It induces a Kaehler metric on the projective space $\mathbf{P}(V)$ associated to V, whose exterior form is denoted by $\ddot{\omega}_0$. Define $\ddot{\omega}_{00} = 1$ and

$$\ddot{\omega}_{0s} = \frac{1}{s!} \ddot{\omega}_0 \wedge \ldots \wedge \ddot{\omega}_0 \quad (s\text{-times})$$

$$W(s) = \frac{\pi^s}{s!}.$$

Let $f: M \to \mathbf{P}(V)$ be a holomorphic map. For $0 \leqslant s \leqslant \mathrm{Min}\,(n, m)$, define the characteristic of order s by

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(2) Define $d^\perp = i(\partial - \bar{\partial}) = -d^c$ where $d = \partial + \bar{\partial}$.