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ON THE FUNDAMENTAL INEQUALITY FOR NON-DEGENERATE HOLOMORPHIC CURVES

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1. Introduction

Let

$$f: \boldsymbol{C} \longrightarrow P^n(\boldsymbol{C})$$

be a holomorphic curve from $\boldsymbol{C}$ into the n-dimensional complex projective space $P^n(\boldsymbol{C})$, where n is a positive integer, and let

$$(f_1, \dots, f_{n+1}): \boldsymbol{C} \longrightarrow \boldsymbol{C}^{n+1} - \{\boldsymbol{0}\}$$

be a reduced representation of f. We then write f as follows:

$$f=[f_1, \dots, f_{n+1}].$$

We use the following notation:

$$\|f(z)\|=(|f_1(z)|^2+\cdots+|f_{n+1}(z)|^2)^{1/2}$$

and for a vector $\boldsymbol{a}=(a_1, \dots, a_{n+1})$ in $\boldsymbol{C}^{n+1}$

$$(\boldsymbol{a}, f)=a_1f_1+\cdots+a_{n+1}f_{n+1},$$

$$(\boldsymbol{a}, f(z))=a_1f_1(z)+\cdots+a_{n+1}f_{n+1}(z),$$

$$\|\boldsymbol{a}\|=(|a_1|^2+\cdots+|a_{n+1}|^2)^{1/2}.$$

The characteristic function $T(r, f)$ of f is defined as follows (see [11]):

$$T(r, f)=\frac{1}{2\pi}\int_0^{2\pi}\log\|f(re^{i\theta})\|d\theta-\log\|f(0)\|.$$

Further, put

$$U(z)=\max_{1\le j\le n+1}|f_j(z)|,$$

then it is known ([1]) that

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