

Defect relation for targets of large codimension

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Let $f : \mathbf{C} \rightarrow \mathbf{P}^2$ be a holomorphic curve and $T(r)$ its Nevanlinna characteristic. For a point $a \in \mathbf{P}^2$, let us define the proximity function

$$m(r, a, f) = \frac{1}{2\pi} \int_0^{2\pi} \log \frac{1}{d(f(re^{it}), a)} dt,$$

where d is the Fubini–Study distance. Then the deficiency is defined in the usual way

$$\delta(a, f) = \liminf_{r \rightarrow \infty} \frac{m(r, a, f)}{T(r, f)}.$$

Conjecture. *For every system of points in general position, and every non-constant f , we have*

$$\sum_a \delta(a, f) \leq 1.$$

Cartan’s Second Fundamental theorem gives 3/2 instead of 1.