

1062-32-43

Chia-chi Tung* (chia.tung@mnsu.edu), Dept. of Math. and Stat., Minnesota State University, Mankato, Mankato, MN 56001. *On Hilbert Number and Hilbert Exponent for Holomorphic Mappings.*

In this work attempts are made to answer the question: for a subvariety \mathfrak{Z} in a product of pure dimensional complex spaces, under what conditions a global or semiglobal Hilbert Nullstellensatz for \mathfrak{Z} can be ascertained? A main result obtained is the following: Assume that X, Y are normal complex spaces and $\mathcal{S} \subset X$ a subvariety of pure positive codimension q admitting a weakly normal defining map $g : X \rightarrow \mathbb{C}^p$. Then for each relatively compact open subset D of X , a Hilbert relation over Y holds for all holomorphic functions on $Y \times D$ vanishing on $Y \times (\mathcal{S} \cap D)$, with an explicitly determined Hilbert exponent \mathfrak{h}_D . Similar results hold for a subvariety in a product space (in particular, $Y \times \mathbb{P}^N(\mathbb{C})$). Also, conditions for a hypersurface in a product space to admit a principal generator and characterizations of solid pseudospherical harmonics on a semi-Riemann domain are given. (Received July 15, 2010)