

1070-32-31

John P. D'Angelo*, Dept. of Mathematics, Univ. of Illinois, 1409 W. Green St., Urbana, IL 61801. *Hermitian analogues of Hilbert's 17th problem.*

Let X be a subset of \mathbf{C}^n , and suppose that the function f takes positive values on X . We discuss the following general question: under what conditions on X and f is there a Hilbert space valued holomorphic function h such that $f = \|h\|^2$ on X . In this talk we emphasize the case when X is real-algebraic and f is a (Hermitian) polynomial. (Received December 16, 2010)