

*Interpolation Problems for Functions of Several Complex Variables**

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1. For analytic functions of one complex variable, the following interpolation problem has a well known solution in terms of the Bergman kernel function. Let \mathcal{L}^2 denote the class of holomorphic functions f in a domain D which satisfy $\iint_D |f|^2 dx dy < \infty$. Then among all functions satisfying the normalizing condition $f(z_0) = 1$ for $z_0 \in D$ we seek the function for which $\iint_D |f|^2 dx dy$ is a minimum. BERGMAN [2] extended this problem to functions f of two complex variables which are holomorphic in a domain D and for which $\|f\|^2 = \iiint_D |f|^2 dV$ is finite, dV representing the measure of the four dimensional volume element. He again specified the value of f at one point and sought the minimum of $\|f\|$. The problem was solved by the Bergman kernel for the domain D .

The analytic functions f of n complex variables assume the value a not at isolated points but on analytic manifolds of complex dimension $n - 1$. Thus it would seem natural to pose an interpolation problem in which the functions are normalized to assume prescribed values on some given $n - l$ dimensional manifolds.

Let D be a bounded domain in the space C_n of n complex variables. Let $\mathcal{L}^2(D)$ denote the class of functions g which are holomorphic in D and for which

$$(1) \quad \|g\|^2 = \int_D |g|^2 dV < \infty$$

where dV represents the measure of the $2n$ real dimensional volume element in C_n .

Let E be an arbitrary holomorphy domain containing \bar{D} in its interior. To each point P of E we associate a neighborhood U_P and a function f_P which is holomorphic in U_P and let M_P be the $(n-1)$ -manifold in which

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