

On the Kernel Function in Domains with Bergman-Šilov Boundary Surface

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1. Introduction. When investigating the theory of functions of several complex variables, it is of considerable interest to consider the connection between value distributions of an analytic function inside a given domain and on its boundary.

In many instances, when passing from the theory of one complex variable to the theory of several complex variables, it is necessary to introduce new tools of investigation. Further, when considering such connections in the case of two complex variables (and after making some modifications for the case of n complex variables, $2 < n < \infty$), it is advantageous to limit ourselves to a special class of domains, namely those domains which are bounded by finitely many segments of analytic hypersurfaces, referred to as analytic polyhedra \mathfrak{M} , see [2]. These domains possess a Bergman-Šilov boundary surface $B(\mathfrak{M})$ which lies in the boundary hypersurface $\partial\mathfrak{M}$ of \mathfrak{M} .

From a function-theoretical point of view, $B(\mathfrak{M})$ plays a similar role as the boundary curve in the case of one complex variable, namely:

- i) The absolute value of an analytic function f of two complex variables $z = (z_1, z_2)$, regular in \mathfrak{M} , continuous in $\overline{\mathfrak{M}}$, assumes its maximum not only on $\partial\mathfrak{M}$ but, in fact, on $B(\mathfrak{M})$. Hence the maximum or the minimum of $\operatorname{Re} f(z)$ is assumed on $B(\mathfrak{M})$.
- ii) In the domain \mathfrak{M} the Bergman-Weil Formula holds, expressing the value of an analytic function inside \mathfrak{M} in terms of its values on $B(\mathfrak{M})$. This formula is more complicated than the Cauchy Formula for the case of one complex variable, since its kernel depends upon the domain \mathfrak{M} .
- iii) For some special cases of analytic polyhedra \mathfrak{M} , a generalization of Fatou's Theorem for analytic functions f , which are bounded in $\overline{\mathfrak{M}}$, holds. The

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