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HOLOMORPHIC MAPPINGS INTO A COMPACT QUOTIENT OF SYMMETRIC BOUNDED DOMAIN

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1. Introduction

In this paper, we shall be concerned with the finiteness property of certain holomorphic mappings into a compact quotient of symmetric bounded domain.

Let $\mathfrak{D}$ be a symmetric bounded domain in n-dimensional complex Euclidean space $\boldsymbol{C}^n$ and $\Gamma\backslash\mathfrak{D}$ be a compact quotient of $\mathfrak{D}$ by a torsion free discrete subgroup Γ of automorphism group of $\mathfrak{D}$. Further, we denote by $\ell(\mathfrak{D})$ the maximum value of dimension of proper *boundary component* of $\mathfrak{D}$, which is less than n $(=\dim\mathfrak{D})$. Then, the exact statement of our assertion is the following:

THEOREM A. *Let M be a compact Kähler manifold. Then there are only finite number of holomorphic mappings of M into $\Gamma\backslash\mathfrak{D}$ whose rank*[1] *are greater than $\ell(\mathfrak{D})$. In particular, the set of surjective holomorphic mappings is finite.*

Remark. Notice that the compact quotient $\Gamma\backslash\mathfrak{D}$ is of general type. Hence, in the case of compact quotient Theorem A gives a generalization of a result of S. Kobayashi and T. Ochiai [6] which asserts the finiteness of surjective holomorphic mappings of M onto a compact complex space of general type.

For convenience' sake, we give a complete list of $\ell(\mathfrak{D})$ in each irreducible case. For our notation, we refer to S. Helgason [3].

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1) For a holomorphic mapping $\varphi\colon M\to\Gamma\backslash\mathfrak{D}$, rank of φ is defined by
$$\sup_{z\in M}(\dim_z M-\dim_z\varphi^{-1}(\varphi(z)))\,,$$