

MEROMORPHIC OR HOLOMORPHIC COMPLETION OF A REINHARDT DOMAIN

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Dedicated to Professor Katuzi Ono on his 60th birthday

Introduction

In the theory of functions of several complex variables, the problem about the continuation of meromorphic functions has not been much investigated for a long time in spite of its importance except the deeper result of the continuity theorem due to E. E. Levi [4] and H. Kneser [3]. The difficulty of its investigation is based on the following reasons: we can not use the tools of not only Cauchy's integral formula but also the power series and there are indetermination points for the meromorphic function of many variables different from one variable. Therefore we shall also follow the Levi and Kneser's method and seek for the aspect of meromorphic completion of a Reinhardt domain in C^n .

The main purpose of the present note is to prove that any meromorphic function in a Reinhardt domain D in C^n is meromorphically continued to the envelope of holomorphy of D .

Kajiwara and the author [2] have proved this result for any domain over a Stein manifold. Therefore the above result is established naturally as the special case of [2]. However, for the elementary domain like the Reinhardt domain, it is desirable to give the direct and simple proof. For the case of $n = 2$, Thullen [8] has discussed in detail such a completion. In the case of $n (\geq 2)$ complex variables, we shall give a new proof about theorems on meromorphic completion by the only use of Continuity Theorem of Levi-Kneser (Kneser [3]).

If throughout this paper we replace the term "meromorphic (or meromorphy)" by "holomorphic (or holomorphy)", then the given theorems are