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A UNICITY THEOREM FOR MEROMORPHIC MAPPINGS INTO COMPACTIFIED LOCALLY SYMMETRIC SPACES

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Introduction

The classical theorem of Nevanlinna states that non-constant holomorphic mappings $f, g: \boldsymbol{C} \to \boldsymbol{P}_1(\boldsymbol{C})$ satisfying $f^{-1}(a_i)=g^{-1}(a_i)$ with multiplicities for distinct five points $a_1, \cdots a_5 \in \boldsymbol{P}_1(\boldsymbol{C})$ are identical ([11]). The unicity theorems of this type for holomorphic (or meromorphic) mappings were studied by several authors (cf., *e.g.*, [4], [5], [6] and [14]). For instance, in [6], H. Fujimoto studied meromorphic mappings $f: \boldsymbol{C}^n \to \boldsymbol{P}_m(\boldsymbol{C})$, using Borel's theorem and obtained many interesting results. On the other hand, S. Drouilhet [5] proved a unicity theorem of another type for meromorphic mappings $f: M \to V$, where M is a smooth affine variety and V is a smooth projective variety with $\dim V \leqq \dim M$. He used the second main theorem for meromorphic mappings due to Shiffman [15]. In this paper, we prove some unicity theorems for meromorphic mappings of a finite analytic covering space over $\boldsymbol{C}^n$ into a smooth toroidal compactification of a locally symmetric space, by making use of a second main theorem proved in [1].

Let $\mathscr{D}$ be a bounded symmetric domain in $\boldsymbol{C}^m$ and $\Gamma \subset \mathrm{Aut}(\mathscr{D})$ a neat arithmetic group. Let γ be a positive rational number such that the holomorphic sectional curvature of the Bergman metric on $\mathscr{D}$ is bounded by $-\gamma$ from above. We denote by $\overline{\Gamma\backslash\mathscr{D}}$ a smooth toroidal compactification of $\Gamma\backslash\mathscr{D}$ such that $D=\overline{\Gamma\backslash\mathscr{D}}-\Gamma\backslash\mathscr{D}$ is a hypersurface with only normal crossings. Let $\iota: \overline{\Gamma\backslash\mathscr{D}} \to \boldsymbol{P}_N(\boldsymbol{C})$ be a non-constant holomorphic mapping and $[H] \to \boldsymbol{P}_N(\boldsymbol{C})$ the hyperplane bundle over $\boldsymbol{P}_N(\boldsymbol{C})$. Let $\pi: X \to \boldsymbol{C}^n$ be a finite analytic covering with ramification divisor R. Then we have the following unicity theorem for meromorphic mappings $f: X \to \overline{\Gamma\backslash\mathscr{D}}$ in the case $1 \leqq n < m$ (see Theorem 2.1 in §2):

Let $f, g: X \to \overline{\Gamma\backslash\mathscr{D}}$ be meromorphic mappings of maximal rank such that $f^{-1}(D)=g^{-1}(D)=E$ and $f=g$ on E. Assume that

$$L=K(\overline{\Gamma\backslash\mathscr{D}})\otimes[D]\otimes\frac{2}{\gamma}\iota^*[H]^{-1}$$

is big and $|\nu L\otimes[D]^{-1}|$ has no base point in $\Gamma\backslash\mathscr{D}$ for $\nu\gg 0$. We also assume that

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