K. SAWADA AND K. TOHGE
KODAI MATH. J.
18 (1995), 142—155

A REMARK ON THREE-SHEETED ALGEBROID SURFACES WHOSE PICARD CONSTANTS ARE FIVE

Dedicated to Professor Mitsuru Ozawa on his 70th birthday

KAZUNARI SAWADA AND KAZUYA TOHGE

§1. Introduction

Let $\mathcal{M}(R)$ be the family of non-constant meromorphic functions on a Riemann surface R, and $P(f)$ be the number of values, which are not taken by $f\in\mathcal{M}(R)$. Then we put

$$P(R)=\sup_{f\in\mathcal{M}(R)} P(f),$$

which is called the Picard constant of R. In general $P(R)\geqq 2$ for every open Riemann surface R.

An n-sheeted algebroid surface is a proper existence domain of an n-valued algebroid function, which is defined by the following equation:

$$S_0(z)y^n-S_1(z)y^{n-1}+\cdots+(-1)^{n-1}S_{n-1}(z)y+(-1)^n S_n(z)=0,$$

where $S_i(z)$ $(i=0, 1, \cdots, n)$ are entire functions having no common zeros, all of which are not polynomials.

By Selberg's theory of algebroid functions [7], $P(R)\leqq 2n$ for every n-sheeted algebroid surface R.

If $S_i(z)/S_0(z)$ (for all i) are of finite order, then we call that the surface is of finite order.

In the following we shall consider 3-sheeted algebroid surfaces, that is, the case of $n=3$, with $S_0(z)\equiv 1$.

In [5] Ozawa and the first author listed up all of the 3-sheeted algebroid surfaces with $P(y)=5$ and showed that "if R is of finite order" their Picard constants are equal to 5 with three exceptional cases.

In this paper we shall prove that the assumption:

"R is of finite order"

can be taken off in the above result.

Received November 4, 1993.