Y. ADACHI
KODAI MATH. J.
23 (2000), 164–170

ON VALUE DISTRIBUTION OF ENTIRE MAPS OF C^2 TO C^2

YUKINOBU ADACHI

§0. Introduction

In 1935, Thullen [T] studied about essential singular surfaces of analytic functions of n complex variables and obtained a generalization of the big Picard theorem. He studied about value distribution of such functions by considering continuation of level surfaces to essential singular surfaces.

And from 1968, Nishino studied about value distribution of level surfaces of entire functions of n complex variables systematically. He studied especially about algebraic type entire functions of two vaiables and obtained a beautiful theorem (see Theorem 1.12 in this paper) in [N2].

Now we study about value distribution of entire maps of $\boldsymbol{C}^2$ to $\boldsymbol{C}^2$ with being based on the above studies. We obtain analogies of Nishino's theorem (Theorem 2.8).

The author would like to express his hearty gratitude to referee for his kind suggestions.

§1. Value distribution of entire functions of C^2

Firstly, after some preliminalies, we prove Lemma 1.5 which is important in this paper.

DEFINITION 1.1. If C is an irreducible curve in $\boldsymbol{C}^2$ (that is, irreducible 1-dimensional analytic subset of $\boldsymbol{C}^2$) which may be transcendental and the normalization of C is isomorphic to a Riemann surface whose genus is $g < \infty$ and boundaries are n punctured points, we call C is a curve of algebraic type and of (g, n) type.

DEFINITION 1.2. If A is an irreducible algebraic curve in $\boldsymbol{C}^2$ and its normalization is of (g, n) type where $2g - 2 + n > 0$, we call A is an algebraic curve of general type.

DEFINITION 1.3. If A is an irreducible algebraic curve in $\boldsymbol{C}^2$ such that either its genus >0 or it intersects the line at infinity with more than two different points, we call A is a hyperbolic algebraic curve.

Received July 15, 1998; revised December 8, 1999.