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A THEOREM ON UNIFORMITY OF PRIME SURFACES OF AN ENTIRE FUNCTION OF TWO COMPLEX VARIABLES

YÔICHI IMAYOSHI

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1. Introduction. Let f be a non-constant entire function of two complex variables x and y. Let z be a complex parameter. An irreducible component of an analytic surface in the space (x, y), defined by the equation $f(x, y) = z$, is called a prime surface of f with the value z and is denoted by S_z. A prime surface S_z is said to be parabolic and of type (g, n) when it is parabolic, of genus g and it has n boundary components as a Riemann surface. A prime surface S_z is said to be of finite type if its genus and the number of its boundary components are finite. Moreover, a prime surface S_z is called algebraic if it is of finite type and is parabolic.

The class of all entire functions whose prime surfaces are all parabolic is called the class (P). The class of all entire functions whose prime surfaces are all algebraic is called the class (A).

The following theorem is due to Nishino ([4]; Theorem I, p. 263, cf. [3]; Theorem p. 271).

THEOREM. *A function f of the class* (P) *belongs to the class* (A) *if it has "sufficiently many" algebraic prime surfaces, that is, if the set of values taken by f on its algebraic prime surfaces is of positive capacity.*

Recently, Yamaguchi proved the following theorem ([6]; Theorem 4, p. 433).

THEOREM. *If every prime surface of f is schlicht and if f has "sufficiently many" parabolic prime surfaces, then f belongs to the class* (P).

From above two theorems, it follows that, if every prime surface of f is schlicht and if f has "sufficiently many" algebraic prime surfaces, then f belongs to the class (A). In this article, one proves the following theorem[1] which is a generalization of the fact stated just above.

THEOREM. *If f has "sufficiently many" schlicht algebraic prime*

[1] Professor H. Yamaguchi informed me by the letter that H. Saitô also proved the same result independently.