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The principle of closeness of sufficiently large sets of a-points of meromorphic functions

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Abstract. A new version of the proximity principle is given for functions meromorphic in the unit disk.

Key words: value distribution theory, proximity property of a-points.

Introduction. Value distribution of functions meromorphic in $\mathbb{C}$.

The classical theories of R. Nevanlinna and L. Ahlfors [7] describe the distribution of the a-points of functions meromorphic in $\mathbb{C}$. These theories give very precise information for most values of a; they do not say anything about the mutual arrangement of a-points for varying a. The mutual arrangement (m.a.) of a-points was considered in numerous articles devoted to the study of "cercles de remplissage" and to Julia and Borel lines. However, this research was concerned with the m.a. in relatively small portions of the plane. The papers [1], [2], [3] by the present author give a "general principle of the proximity of a-points". This principle also has some bearing on the classical value-distribution theory.

1. Value distribution of functions meromorphic in the unit disk D.

Results analogous to those of Nevanlinna-Ahlfors theory and the proximity principle are true in the case of functions meromorphic in the unit disk D, provided the spherical characteristic function $A(r)$ has a rather fast rate of growth:

$$\limsup_{r\to 1} A(r)(1-r)=\infty. \tag{1}$$

(See [3], [7]).

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