

ON ANALYTIC FUNCTIONS ON SOME RIEMANN SURFACES

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Introduction

In the theory of functions meromorphic in $|z| < +\infty$, Iversen [4] proved the following: If $w=f(z)$ is meromorphic in $|z| < +\infty$ and has an essential singularity at $z=\infty$, then any inverse function-element of this function with the centre w_0 can be continued analytically to any point $w \neq w_0$, except possibly this point w , in any disc having the centre at the point w and containing the point w_0 .

This fact plays important roles to study the properties of covering surfaces generated by the inverse functions of analytic functions. This property was discussed by many authors. Above all, Stoilow [22] and Mori [10] contributed to extend the above Iversen theorem in more general cases.

In this article, we shall give an extension of the Iversen theorem in the case when the existence domain of a single-valued analytic function is a Riemann surface satisfying some condition. Such a Riemann surface belongs to O_{AB} but not to O_{HD} , where we use the following notations:

O_{HB} (or O_{AB}): the class of Riemann surfaces on which there exists no non-constant single-valued bounded harmonic (or analytic) function.

O_{HD} (or O_{AD}): the class of Riemann surfaces on which there exists no non-constant single-valued harmonic (or analytic) function whose Dirichlet integral taken over the Riemann surface is finite.

Our result contains Stoilow's theorem and Mori's. Recently Heins [3] also dealt with such a problem.

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