

An Analytic Disc Approach to the Notion of Type of Points

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ABSTRACT. The purpose of this paper is to give an analytic disc approach to the notion of type of points. We consider here the case of a real hypersurface M in \mathbb{C}^2 ; however, this approach with all of its consequences, can be generalized, with some modifications, to the case of arbitrary CR manifolds. This will be discussed in subsequent papers. In this paper we define a real valued function $\Phi = \Phi(p, \delta)$, $p \in M$, $\delta \in \mathbb{R}$: $\delta \geq 0$, which characterizes points of finite type (in the sense of Kohn, Bloom–Graham, D’Angelo), and more importantly, distinguishes between different kinds of points of infinite type (e.g. points where M is minimal in the sense of Tumanov). As a byproduct of the latter characterization, we get a very simple proof of the holomorphic extension of CR functions (result of Trépreau) which avoids all technical difficulties. As another application of the type function we get boundary estimates for plurisubharmonic functions.

Contents

1.	Introduction	714
2.	Definitions, notation, analytic discs attached to a hypersurface . . .	717
3.	Definition and immediate properties of the type function Φ	721
4.	Biholomorphic invariance of the type function	722
5.	Relation between the type function and the classical type of points ..	725
6.	Holomorphic extension of CR functions by using the type function ..	727
7.	Relation between the type function and the minimality of a hypersurface	728
8.	Modification in the definition of the type function	730
9.	Boundary estimates for plurisubharmonic functions	732