

Introduction to hyperbolic function theory

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Abstract

Hyperbolic function theory, as introduced by S.L. Eriksson and the speaker, is a natural extension of classical complex analysis to higher dimensions.

The complex numbers are replaced by the Clifford algebra and the Cauchy-Riemann equations by the hyperbolic version of the Dirac-Fueter system. In this modified system the power-function becomes a solution.

Many results of the classical function theory, in particular the Cauchy integral formula, have counterparts in this setting.

Our generalization is closely connected with the theory of harmonic differential forms, if considered on the hyperbolic space.

The aim of these talks is to give an introduction into this generalized function theory.