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Rigidity of proper holomorphic mappings between equidimensional Hua domains

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Abstract

Hua domain, named after Chinese mathematician Loo-Keng Hua, is defined as a domain in $\mathbb{C}^n$ fibered over an irreducible bounded symmetric domain $\Omega \subset \mathbb{C}^d$ $(d < n)$ with the fiber over $z \in \Omega$ being a $(n-d)$-dimensional generalized complex ellipsoid $\Sigma(z)$. In general, a Hua domain is a nonhomogeneous domain without smooth boundary. The purpose of this paper is twofold. Firstly, we obtain what seems to be the first rigidity results on proper holomorphic mappings between two equidimensional Hua domains. Secondly, we determine the explicit form of the biholomorphisms between two equidimensional Hua domains. As a special conclusion of this paper, we completely describe the group of holomorphic automorphisms of the Hua domain. This is recent joint work with Lei Wang.