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Section:

8. Analysis

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Zaitsev, Dmitri, Universität Tüebingen

On holomorphic boundary extensions, web theory and invariants of Grassmanians.

For D, D' analytic polyhedra in $\mathbb{C}^n$, we prove that a biholomorphic mapping $f\colon D \to D'$ extends holomorphically to a dense boundary subset under a certain condition of general position. This result can be extended to a more general class of domains with no smoothness condition on the boundary. We use the invariance of the so-called characteristic webs in the sense of Remmert-Stein and calculate invariants of Grassmanian products $G_{n,n_1} \times \cdots \times G_{n,n_s}$ under the diagonal action of $\mathbf{GL}_n$ to derive partial differential equations for f. Holomorphic extensions of these equations can be exploited to extend f.

Reference: D. Zaitsev, Domains of polyhedral type and boundary extensions of biholomorphisms, *to appear in Indiana Math. Journal*, 1998.