GEOMETRIC PROPERTIES OF DOMAINS RELATED TO μ-SYNTHESIS

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We study the geometric properties of a large family of domains, called the generalized tetrablocks, related to the μ-synthesis, containing both the family of the symmetrized polydiscs and the family of the $\mu_{1,n}$-quotients $\mathbb{E}_n$, $n \geq 2$, introduced recently in [2]. It is proved that the generalized tetrablock cannot be exhausted by domains biholomorphic to convex ones. Moreover, it is shown that the Carathéodory distance and the Lempert function are not equal on a large subfamily of the generalized tetrablocks, containing i.a. $\mathbb{E}_n$, $n \geq 4$. We also derive a number of geometric properties of the generalized tetrablocks as well as the $\mu_{1,n}$-quotients. As a by-product, we get that the pentablock, another domain related to the μ-synthesis problem introduced recently in [1], cannot be exhausted by domains biholomorphic to convex ones.

References

[1] J. Agler, Z. A. Lykova, N. J. Young, *The complex geometry of a domain related to μ-synthesis*, arXiv:1403.1960.

[2] G. Bharali, *A family of domains associated with μ-synthesis*, arXiv:1407.2869.

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