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Holomorphic automorphisms of continuous products of balls. (English)

Let $\mathcal{C}(\omega, E)$ denote the space of all continuous E-valued functions on ω, where ω is a compact Hausdorff topological space and E a complex Banach space. The authors study the group of holomorphic automorphisms of continuous product domains D in $\mathcal{C}(\omega, E)$. These product domains have natural fibrations and it is of interest to understand the fiber preserving automorphisms. Denote by $G(D)$ the identity component in the group of all holomorphic automorphisms of D.

If $(D_w)_{w\in\omega}$ is a family of domains in E with a mild restriction on smoothness of the boundary and some other mild condition, then for $D = \{f \in \mathcal{C}(\omega, E) : f(w) \in D_w, w \in \omega\}$ the authors show that all transformations in $G(D)$ are fiber preserving.

In the case of continuous families of balls in JB^*-triples the authors characterize the complete vector fields in the product domain reobtaining old results and also showing that others are not longer valid in the new context by providing counterexamples.

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Keywords: continuous E-valued functions; group of holomorphic automorphisms; product domains

Classification:
  ∗32M05 Automorphism groups of complex spaces
   32M15 Symmetric spaces (analytic spaces)
   46L70 Nonassociative selfadjoint operator algebras