

Some vector-valued Banach function algebras, satisfying the Bochner–Eberlein–Doss property

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Abstract. The notion of BED algebras was introduced by Japanese mathematicians. Afterwards, some authors investigated the BED property of some commutative and semisimple Banach algebras. In this paper, assuming that X is a Hausdorff locally compact space and $\mathcal{A}$ is a commutative and semisimple Banach algebra, we verify the BED property for $C_0(X, \mathcal{A})$. We first prove that $\mathcal{A}$ is a BED algebra, whenever $C_0(X, \mathcal{A})$ is so. Then, we verify the converse of this statement, and prove that $\widehat{\mathcal{A}} \subseteq C_{\text{BSE}}^0(\Phi_{\mathcal{A}})$ implies that $\widehat{C_0(X, \mathcal{A})} \subseteq C_{\text{BSE}}^0(\Phi_{C_0(X, \mathcal{A})})$. Finally, similar to the BSE case, we prove that if X is discrete, then $C_0(X, \mathcal{A})$ is a BED algebra if and only if $\mathcal{A}$ is so.

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