CHARACTERIZATION OF $\xi$–LIE MULTIPLICATIVE ISOMORPHISMS

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Abstract. Let $\mathcal{A}$ and $\mathcal{A}'$ be two algebras over a field $\mathbb{F}$ and $\xi \in \mathbb{F}$ a scalar. A map $\Phi : \mathcal{A} \to \mathcal{A}'$ is called a $\xi$-Lie multiplicative isomorphism if $\Phi$ is bijective and satisfies $\Phi(AB - \xi BA) = \Phi(A)\Phi(B) - \xi \Phi(B)\Phi(A)$ for all $A, B \in \mathcal{A}'$. The additivity of $\xi$-Lie multiplicative isomorphisms on prime algebras is discussed. A characterization of $\xi$-Lie multiplicative isomorphisms between matrix algebras over a field of characteristic not 2 and a characterization of $\xi$-Lie multiplicative isomorphisms between infinite dimensional Banach space standard operator algebras are obtained.


REFERENCES