SOME RESULTS ON σ-DERIVATIONS

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ABSTRACT. Let $\mathcal{A}$ and $\mathcal{B}$ be two Banach algebras and let $\mathcal{M}$ be a Banach $\mathcal{B}$-bimodule. Suppose that $\sigma : \mathcal{A} \to \mathcal{B}$ is a linear mapping and $d : \mathcal{A} \to \mathcal{M}$ is a σ-derivation. We prove several results about automatic continuity of σ-derivations on Banach algebras. In addition, we define a notion for m-weakly continuous linear mapping and show that, under certain conditions, d and σ are m-weakly continuous. Moreover, we prove that if $\mathcal{A}$ is commutative and $\sigma : \mathcal{A} \to \mathcal{A}$ is a continuous homomorphism such that $\sigma^2 = \sigma$ then $\sigma d\sigma(\mathcal{A}) \subseteq \sigma(Q(\mathcal{A})) \subseteq rad(\mathcal{A})$.

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