

Title: Jordan left derivations at the idempotent elements on reflexive algebras

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Let  $\mathbb{A}$  be a Banach algebra with unity  $\mathbf{1}$ , and  $\mathbb{M}$  be a unital Banach left  $\mathbb{A}$ -module. Let  $\delta : \mathbb{A} \to \mathbb{M}$  be a continuous linear map with the property that

$$ab + ba = z \Rightarrow 2a\delta(b) + 2b\delta(a) = \delta(z), \quad a, b \in \mathbb{A},$$

where  $z \in \mathbb{A}$ . In this article, we first characterize the continuous linear maps  $\delta$  satisfying the above property for  $z = \mathbf{1}$ . Then we consider the case  $\mathbb{A} = \mathbb{M} = \operatorname{Alg} \mathcal{L}$ , where  $\operatorname{Alg} \mathcal{L}$  is a reflexive algebra on a Hilbert space  $\mathbb{H}$ , and z = P is a non-trivial idempotent in  $\mathbb{A}$  with  $P(\mathbb{H}) \in \mathcal{L}$ , and then we describe  $\delta$ . Finally, we apply the main results to CSL-algebras, irreducible CDC-algebras and nest algebras on a Hilbert space  $\mathbb{H}$ .

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