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## The S-spectrum of combinations of idempotents on two-sided quaternionic Banach algebra

### Communication Info

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- (1) two-sided quaternionic Banach algebra
- (2) Idempotents
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### Abstract

In this paper, we give the relation between the S-spectrum of  $fg$  and those of  $\alpha f + \beta g$ , where  $f, g$  are two idempotents on a two-sided quaternionic Banach algebra  $\mathcal{A}$  and  $\alpha, \beta \in \mathbb{R}$ . We study also the invertibility of linear combinations of idempotents on  $\mathcal{A}$ . To achieve these, we define the complexification  $\mathcal{A}_C$  of  $\mathcal{A}$ , which we see as a real Banach algebra and we establish a relation between the S-spectrum of  $a \in \mathcal{A}$  and the spectrum of  $a$  as an element of the complexification  $\mathcal{A}_C$ .

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