

Zero Product Determined Algebras

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A (not necessarily associative) algebra A over a field F is said to be zero product determined if every bilinear functional $f : A \times A \rightarrow F$ with the property that $ab = 0$ implies $f(a, b) = 0$ is of the form $f(a, b) = \varphi(ab)$ for some linear functional φ on A .

In the context of Banach algebras, one adds the assumption that f and φ are continuous. We will first survey the general theory of zero product determined algebras, and then discuss its applications to commutativity preserving linear maps.