

**A CLASSIFICATION OF TWO-DIMENSIONAL
ENDO-COMMUTATIVE ALGEBRAS OVER \mathbb{F}_2**

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Dedicated to Professor Yuji Kobayashi on his 77th birthday (Kiju)

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ABSTRACT. We introduce a new class of algebras called endo-commutative algebras in which the square mapping preserves multiplication. As the initial step, we present a complete classification of two-dimensional endo-commutative algebras over the field \mathbb{F}_2 of two elements. We provide a list of all multiplication tables for these algebras up to isomorphism. This analysis serves to elucidate the difference between commutative and endo-commutative algebras.