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The isomorphism problem of unitary subgroups of modular group algebras

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Abstract. Let $V_*(FG)$ be the normalized unitary subgroup of the modular group algebra FG of a finite p-group G over a finite field F with the classical involution $*$. We investigate the isomorphism problem for the group $V_*(FG)$, i.e., we pose the question when the group algebra FG is uniquely determined by $V_*(FG)$. We give affirmative answers for classes of finite abelian p-groups, 2-groups of maximal class and non-abelian 2-groups of order at most 16.

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