Külshammer, B.; Sharma, R. K.
Lie centrally metabelian group rings in characteristic 3. (English) Zbl 0845.16020

Let $L$ be a Lie algebra over a field $F$, $L' = [L, L]$ and $L'' = (L')'$. The Lie algebra $L$ is called centrally metabelian if $[L'', L] = 0$. Let $A$ be an associative unitary algebra over a field $F$ and let $\mathfrak{L}(A)$ be the Lie algebra which has the same underlying vector space as $A$ and which satisfies $[a, b] = ab - ba$ for $a, b \in A$. The algebra $A$ is called Lie centrally metabelian if $\mathfrak{L}(A)$ is centrally metabelian. Let $FG$ be the group algebra of a group $G$ over a field $F$ of characteristic 3. A necessary and sufficient condition for $FG$ to be centrally metabelian is given. It is the main result of the paper.

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MSC:
16S34 Group rings
17B60 Lie (super)algebras associated with other structures (associative, Jordan, etc.)
16W10 Rings with involution; Lie, Jordan and other nonassociative structures
20C07 Group rings of infinite groups and their modules (group-theoretic aspects)

Keywords:
centrally metabelian Lie algebras; group algebras

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