

On the invariance of the filtrations of Cartan type \mathfrak{p} -algebras of characteristic 2

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Abstract

Let $L = L_{-1} + L_0 + L_1 + \cdots + L_r$ be one of the Cartan type p -algebras W_n , S_n , or H_n . A. I. Kostrikin and I. R. Safarevic showed that the filtrations $\mathcal{L}_i = \sum_{j \geq i} L_j$, $i = -1, 0, 1, \dots, r$ are invariant under automorphisms of L for $p \geq 3$. It is not known yet if this property is also held for $p = 2$, and the method used by A. I. Kostrikin and I. R. Safarevic is not suitable for $p = 2$. In this paper, using a new method, we give a complete study on the invariance of the filtrations of Cartan type p -algebras of characteristic $p = 2$, and show that the filtrations \mathcal{L}_i , $i = -1, 0, 1, \dots, r$ are invariant under automorphisms of L for $n \geq 3$ while this is false when $n = 2$.