SOLVABLE 3-LIE ALGEBRAS WITH A MAXIMAL HYPO-NILPOTENT IDEAL $N^*$

RUI-PU BAI*, CAI-HONG SHEN†, AND YAO-ZHONG ZHANG‡

Abstract. This paper obtains all solvable 3-Lie algebras with the $m$-dimensional filiform 3-Lie algebra $N$ ($m \geq 5$) as a maximal hypo-nilpotent ideal, and proves that the $m$-dimensional filiform 3-Lie algebra $N$ can't be as the nilradical of solvable non-nilpotent 3-Lie algebras. By means of one dimensional extension of Lie algebras to the 3-Lie algebras, we get some classes of solvable Lie algebras directly.

Key words. 3-Lie algebra, hypo-nilpotent ideal, filiform n-Lie algebra.

AMS subject classifications. 17B05, 17D99.