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### **Crossed Extensions of Lie Algebras**

It is known that Hochschild cohomology groups are represented by crossed extensions of associative algebras. In this paper, we introduce crossed  $n$ -fold extensions of a Lie algebra  $\mathfrak{g}$  by a module  $M$ , for  $n \geq 2$ . We show that such extensions represent elements in the  $(n+1)$ -th Chevalley-Eilenberg cohomology group  $H_{CE}^{n+1}(\mathfrak{g}, M)$ .

**Keywords:** Lie algebras, Chevalley-Eilenberg cohomology, crossed modules, crossed extensions.

**MSC:** 17B56, 17B55, 17A32.