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**Cohomologies and deformations of twisted  $\mathcal{O}$ -operators**

**on 3-Lie algebras**

**Abstract**

We introduce and study twisted  $\mathcal{O}$ -operators on 3-Lie algebras. We construct an  $L_\infty$ -algebra whose Maurer-Cartan elements are twisted  $\mathcal{O}$ -operators and define a cohomology of a twisted  $\mathcal{O}$ -operator  $T$  as the Chevalley-Eilenberg cohomology of a certain 3-Lie algebra induced by  $T$  with coefficients in a suitable representation. Moreover we consider infinitesimal and formal deformations of twisted  $\mathcal{O}$ -operators.