Determination of the 2- cocycles for the three point Witt algebra

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Resumo

We provide formulas for computing the cocycles on a 3-point Witt algebra $Der(R)$, using an isomorphism between two 3-point algebras $Der(R)$ and $Der(S)$, where the cocycle is already defined. These cocycles can be used to construct universal central extensions and the 3-point Virasoro, which are useful for the representation theory of a 3-point current algebra. The computations determining the cocycles on $Der(R)$ involve elegant applications of the Chu-Vandermonde convolution and other identities for sums of binomial coefficients.