The first Hochschild cohomology trivial extensions of quadratic monomial algebras: how to read it from the presentation

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Homological methods provide important information about the structure of associative algebras, revealing sometimes hidden connections amongst them. The Hochschild homology, cohomology - together with its graded algebra structure and its Gerstenhaber structure - of unital associative algebras over a field are invariants preserved by derived equivalences.

The family of quadratic monomial algebras has attracted the attention of many authors in recent times, as well as some subfamilies such as gentle algebras and almost gentle ones.

We give a complete description of the Lie structure of the first cohomology space of the trivial extension in terms of the presentation of the monomial algebra.

This is a joint work with Cristian Chaparro Acosta and Sibylle Schroll, and it is a generalization of the results obtained in [CSS].

References

[CSS] Chaparro Acosta, C., Schroll, S. and Solotar, A. On the Lie algebra structure of the first Hochschild cohomology of gentle algebras and Brauer graph algebras. *J. Algebra* 558 (2020), 293–326.

https://doi.org/10.1016/j.jalgebra.2020.02.003