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Title: The Lie module structure on the Hochschild cohomology groups of monomial algebras of radical square zero

It is well known that the first Hochschild cohomology group is a Lie algebra. Moreover, the Gerstenhaber bracket provides a Lie module structure on the Hochschild cohomology groups. Let  $A := \mathbb{C}Q / \langle Q_2 \rangle$  where  $\mathbb{C}Q$  is the path algebra of the quiver  $Q$  and  $\langle Q_2 \rangle$  is the bilateral ideal generated by paths of length two. In this talk, I will present some results concerning the Lie module structure on the Hochschild cohomology groups of  $A$ . First, I will recall a description of such groups due to Cibils. Then, I will give a combinatorial description of the Gerstenhaber bracket. I will take as an example the two loops quiver in order to describe the Lie module structure using the irreducible modules over  $sl_2(\mathbb{C})$ .