

1023-57-1406

Jozef H. Przytycki* (przytyck@gwu.edu), Department of Mathematics, George Washington University, Old Main, 1922F St. NW, Washington, DC 20052, and **Milena D. Pabiniak** and **Radmila Sazdanovic**. *Hochschild homology, cones, and combinatorial patterns in Khovanov type graph homology.*

The algebra of truncated polynomials $A_m = Z[x]/(x^m)$ plays an important role in the theory of Khovanov and Khovanov-Rozansky homology of links. It is not difficult to compute Hochschild homology of A_m and the only torsion, equal to Z_m , appears in grading $(i, \frac{m(i+1)}{2})$ for any odd i . We have demonstrated that Hochschild homology is closely related to Khovanov homology via comultiplication free graph homology. We analyze here grading of graph homology which is producing torsion for a polygon. We find completely the cohomology $H_{A_2}^{1,v-1}(G)$ and $H_{A_3}^{1,2v-3}(G)$ interpreting them as homology of certain cell complexes. We analyse also the second cohomology $H_{A_2}^{2,v-2}(G)$. The result about $H_{A_2}^{1,v-1}(G)$ and $H_{A_2}^{2,v-2}(G)$ gives as a corollary a fact about Khovanov homology of alternating and + or - adequate link diagrams. (Received September 26, 2006)