Hochschild (co)homology of exterior algebras using algebraic Morse theory

Leon Lampret

Faculty of Mathematics and Physics, Ljubljana, SLOVENIA
[lampretl@gmail.com]

We compute the additive and multiplicative structure of $HH^*(A;A)$, where A is the n-th exterior algebra over a field. We provide concise presentations of algebras $HH_*(A;A)$ and $HH^*(A;A)$, as well as determine their generators in the Hochschild complex. Lastly, we compute an explicit free resolution (spanned by multisets) of the A^e-module A and describe the homotopy equivalence to its bar resolution. All this is done using Sköldberg's algebraic generalization of Forman's discrete Morse theory.