

1145-VL-931

Samuel R. Carolus* (carolus@bgsu.edu), 450 Mathematical Sciences Building, Bowling Green State University, Bowling Green, OH 43402, and **Mihai D. Staic**, 450 Mathematical Sciences Building, Bowling Green State University, Bowling Green, OH 43402. *G-Algebra Structure on the Higher Order Hochschild Cohomology over S^2* .

Gerstenhaber showed that the Hochschild cohomology of an algebra A has a G -algebra structure, namely a graded commutative cup product and a bracket that satisfies a graded Jacobi identity. Hochschild cohomology has a generalization called the higher order Hochschild cohomology. It is associated to a commutative algebra and to a simplicial set, and agrees with the usual Hochschild cohomology when the simplicial set is taken to be S^1 . Following a paper of Gerstenhaber and Voronov, I will show the existence of an operad structure which induces a G -Algebra structure on the higher order Hochschild cohomology associated to S^2 . (Received September 17, 2018)