

Algebra Seminar

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Wednesday, February 1, 2017
1:00p.m., HH-3017

Hopf Algebras, Cohomology and the Modular Group II

Abstract:

As discussed in the first talk, the modular group acts on the center of a finite-dimensional factorizable Hopf algebra, which is the zeroth Hochschild cohomology of this algebra. In this talk, we will present an extension of this action to the entire Hochschild cocomplex.

After briefly recalling the action of the modular group on the center of a finite-dimensional factorizable Hopf algebra, the definition of the Hochschild cocomplex and the lifts of the Radford and Drinfeld map presenting last time, we will lift the antipode to an isomorphism of cocomplexes. Using these maps we are able to define an action of the modular group on the Hochschild cohomology of a factorizable Hopf algebra and to show that the relations are satisfied. A key point in the verification of the relations is the fact that the left and the right action of central elements on a bimodule induce the same map on the Hochschild cohomology groups.