## DEFORMATIONS OF SKEW GROUP ALGEBRAS IN POSITIVE CHARACTERISTIC

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ABSTRACT. This talk will be a friendly introduction to Poincaré-Birkhoff-Witt deformations of skew group algebras which arise from a finite group acting on a polynomial ring. Over fields of characteristic zero, these deformations have been studied in depth. In Lusztig's graded affine Hecke algebras the action of the group is altered, but not the commutativity of the polynomials. In Drinfeld Hecke algebras, the commutativity of the polynomials is altered, but not the action of the group. In the nonmodular setting, (when the characteristic of the field does not divide the order of the group) Lusztig's algebras are all isomorphic to Drinfeld algebras; however, in the modular setting, (when the characteristic of the field divides the order of the group), which we focus on here, that is not the case. Here we will discuss the combinatorial methods and the Hochschild cohomology used to study and classify the deformations that arise in various settings.