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**Niccolò Ronchetti\*** ([niccronc@math.ucla.edu](mailto:niccronc@math.ucla.edu)). *Structure and applications of the  $p$ -torsion derived spherical Hecke algebras of a  $p$ -adic group.*

We introduce the derived spherical Hecke algebra of a reductive  $p$ -adic group with general  $p$ -torsion coefficients, and describe its structure as a graded algebra, as well as with some worked examples.

Time permitting, we will discuss both global applications to the theory of automorphic forms as well as local applications to the mod  $p$  representation theory of a  $p$ -adic group. (Received August 20, 2018)