

Northeastern University



Mathematics Department

Geometry, Physics, and Representation Theory Seminar

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Thursday, October 25, 2:50-3:50 pm, Lake Hall 509

Some examples around derived Hecke algebras

Abstract

Venkatesh introduced a derived enrichment of the Hecke algebra of a p -adic group, which is a graded algebra that he shows has a graded action on the cohomology of the associated symmetric space. Much of the interesting higher derived structure comes from modular representation theory: \mathbf{k} -valued representations of a finite group don't form a semisimple category when the order of the group is zero in \mathbf{k} . In this expository talk, we'll introduce Venkatesh's construction, and discuss another situation where this non-semi-simplicity of the Hecke algebra plays a role in number theory. We'll spend the rest of the lecture discussing examples of (derived) Hecke algebras for the finite group $GL_n(\mathbf{F}_p)$.