Some calculations with higher pro-p-Iwahori cohomology

Abstract:

Let $G$ denote a $p - adic$ reductive group, and $I_1$ a $pro - p - Iwahori$ subgroup. A classical result of Borel and Bernstein shows that the category of complex $G$-representations generated by their $I_1$-invariant vectors is equivalent to the category of modules over the (pro-p-)Iwahori-Hecke algebra $H$. This makes the algebra $H$ an extremely useful tool in the study of complex representations of $G$, and thus in the Local Langlands Program. When the field of complex numbers is replaced by a field of characteristic $p$, the equivalence above no longer holds. However, Schneider has shown that one can recover an equivalence if one passes to derived categories, and upgrades $H$ to a certain differential graded Hecke algebra. We will attempt to understand this equivalence by examining the $H$-module structure of certain higher $I_1$-cohomology spaces, with coefficients in mod-$p$ representations of $G$. If time permits, we’ll discuss how these results are compatible with Serre weight conjectures of Herzig and Gee–Herzig–Savitt.

Special Note:
There will be a pre-talk (also in APM 7218) 1:20-1:50pm

Host: Claus Sorensen

Friday, April 6, 2018
2:00 PM
AP&M 7218