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Bobbe J Cooper* (bcooper@math.umn.edu). *Support Varieties of Tilting Modules for GL_n .*

Let G be a reductive algebraic group scheme defined over the finite field F_p , with Frobenius kernel G_1 . The tilting modules of G are defined as rational G -modules for which both the module itself and its dual have good filtrations. In 1997, J. E. Humphreys conjectured that the support varieties over the Frobenius kernel G_1 of tilting modules with regular highest weight should be given by the Lusztig bijection between cells of the affine Weyl group and nilpotent orbits of G , when $p \geq h$, where h is the Coxeter number. I will present a conjecture for the support varieties of tilting modules when $G = GL_n$. The conjecture is equivalent to Humphreys' conjecture for $p \geq h = n$ and regular weights, but the formulation allows us to consider small p or singular weights as well. We will also present results for several infinite classes of tilting modules, including the case $p = 2$. In the case $p = 2$, this proves the conjecture by S. Donkin for the support varieties of tilting modules. (Received August 26, 2008)