Meeting: 1003, Atlanta, Georgia, SS 8A, AMS Special Session on Modular Representation Theory of Finite and Algebraic Groups, I

1003-20-1657 **Rishi Nath*** (nath@math.uic.edu), Department of Mathematics, University of Illinois at Chicago, 851 South Morgan, Chicago, IL 60607. *On Navarro's Conjecture For The Alternating Groups, p=2.*

The McKay conjecture asserts that if G is a finite group, ,p a prime, then $Irr_{p'}(G)$, the set of complex irreducible characters of G of degree not divisible by p, has the same cardinality as $Irr_{p'}(N_G(P))$, where P is a Sylow subgroup of G, Recently G.Navarro formulated the following refinement of the Mckay conjecture:
Let G be a finite group of order n and let p be a prime. Let e be any nonnegative integer and let $\sigma \in$Gal(Q_n/Q) be any Galois automorphism sending every p'-root of unity α to a fixed power of p, α^{p^e}. Then σ fixes the same number of characters in $Irr_{p'}(G)$ and $Irr_{p'}(N_G(P))$.
In this paper we verify Navarro's Conjecture for the case that $G = A_n$ and $p = 2$. We adapt an argument by R.Carter and P.Fong to show directly that the Sylow 2-groups of A_n are self-normalizing. Combinatorial results of I.G. MacDonald are implemented in conjunction with some classical theorems of Frobenius. (Received October 06, 2004)