

1094-20-59

Stephen D Smith* (smiths@uic.edu). *A Bredon cohomology approach to the blockwise Alperin Weight Conjecture.* Preliminary report.

Alperin (1985) conjectured a combinatorial formula for the number of p -modular irreducibles of a group G . Later Knörr and Robinson (1989) gave a formulation for a particular p -block B of G ; via an alternating sum over blocks B_c for certain local subgroups G_c . Viewing that sum as an Euler characteristic led various authors (Linckelmann, Symonds, Boltje...) to versions in the spirit of the topological literature on decompositions of group cohomology $H^*(G)_p$ (pioneered by Webb in the 1980s).

This talk considers an analogous possible decomposition of the G -conjugation *module* cohomology $H^n(G, B)_p$, via terms $H^n(G_c, B_c)_p$. Indeed a result of Knörr-Robinson implies the decomposition for $n > 0$; reducing the Alperin Conjecture to proving the decomposition at $n = 0$.

This approach also fits naturally into the context developed by Grodal: The B_c define a coefficient system \mathcal{B} ; and the Bredon cohomology of \mathcal{B} should “approximate” that of B . In particular the higher limits $\lim_c^* H^n(G_c, B_c)$ afford the n -th row of the E^2 -page of a natural spectral sequence; and one can investigate possible vanishing of these limits, in the spirit of the “sharpness” property for decompositions. (Received August 06, 2013)