1147-55-585   **Clover May*** (`clovermay@math.ucla.edu`). *Some structure theorems for $RO(G)$-graded cohomology.* Preliminary report.

Computations in $RO(G)$-graded Bredon cohomology can be challenging and are not well understood, even for $G = C_p$, the cyclic group of order p. A recent structure theorem for $RO(C_2)$-graded cohomology with constant $\mathbb{F}_2$ coefficients substantially simplifies computations. The structure theorem says the cohomology of any finite C_2-CW complex decomposes as a direct sum of two basic pieces: cohomologies of representation spheres and cohomologies of spheres with the antipodal action. The proof depends on a Toda bracket that generalizes to odd primes. Work in progress toward a structure theorem for odd primes again requires two types of spheres, as well as a new space that is not a sphere at all. (Received January 26, 2019)