COMPUTATIONS IN EQUIVARIANT ALGEBRAIC TOPOLOGY

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Abstract: Modern algebraic topology sees equivariance arising in unexpected context. Equivariant cohomology carries rich structures but is much harder to compute. In 2009, Hill, Hopkins, and Ravenel solved the 50-year-old Kervaire invariant problem about framed manifolds (for p = 2), which has nothing to do with group actions a prior, using equivariant computation. Their work was related to the computation of the dual Steenrod algebra for the group Z/2 by Hu and Kriz. We compute the dual Steenrod algebra for the group Z/p for odd p. It turns out that the case of odd primes has interesting new components. We hope to use it to tackle the odd primary Kervaire problem, which remains open for p = 3. I will also talk about equivariant factorization homology and its application in the computation of the Real topological Hochschild homology.