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James C Cameron* (jccamer@math.washington.edu), University of Washington, Department of Mathematics, Box 354350, Seattle, WA 98195-4350. *The Duflot filtration in equivariant cohomology and applications to the local cohomology modules of group cohomology rings.*

Duflot defined a filtration on the Borel equivariant cohomology ring of a smooth manifold with an elementary abelian p -group action, and among other applications used this filtration to show that for G a compact Lie group, all associated primes of H^*BG come from restricting to elementary abelian p -groups. This filtration was also used by Symonds to show that group cohomology rings have Castelnuovo-Mumford regularity zero.

We present a formalization of the algebraic structure enjoyed by rings having an analog of the Duflot filtration, and give a refinement of the Duflot filtration to a filtration by a poset related to fixed point data. We show how to from this framework derive basic results in the commutative algebra of group cohomology rings, and give new computations of some of the local cohomology modules for the group cohomology ring of the p -Sylow of S_{p^n} . (Received August 29, 2017)