1173-20-115 **Jon F Carlson*** (jfc@math.uga.edu). *Nilpotence and Duality in the Complete Cohomology of a Module.*

Suppose that G is a finite group and k is a field of characteristic $p > 0$. Let M be a finitely generated kG-module. We consider the complete cohomology ring $\widehat{\mathcal{E}}^*_M = \sum_{n\in\mathbb{Z}} \widehat{\mathrm{Ext}}^n_{kG}(M, M)$. We show that the ring has two distinguished ideals $I^* \subseteq J^* \subseteq \widehat{\mathcal{E}}^*_M$ such that I^* is bounded above in degrees, $\mathcal{E}^*_M/J^*$ is bounded below in degree and J^*/I^* is eventually periodic with terms of bounded dimension. We prove that if M is neither projective nor periodic, then the subring of all elements in negative degrees in $\widehat{\mathcal{E}}^*_M$ is a nilpotent algebra. (Received September 18, 2021)