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**William C. Kronholm\*** ([wkronho1@swarthmore.edu](mailto:wkronho1@swarthmore.edu)), Department of Mathematics and Statistics, Swarthmore College, 500 College Ave., Swarthmore, PA 19081. *A Freeness Theorem for  $RO(\mathbb{Z}/2)$ -graded Cohomology.*

The  $RO(\mathbb{Z}/2)$ -graded equivariant cohomology of a point with constant  $\mathbb{Z}/2$  Mackey functor coefficients is a complicated bigraded ring with many interesting modules. However, the modules which arise as the cohomology of  $\text{Rep}(\mathbb{Z}/2)$ -complexes are free as modules over the cohomology of a point. As a consequence, we are able to compute the cohomology rings of projective spaces and certain Grassmann manifolds in this equivariant setting. (Received August 31, 2009)