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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. *The  $RO(G)$ -graded Serre Spectral Sequence.*

In this paper the Serre spectral sequence is extended from Bredon cohomology to  $RO(G)$ -graded cohomology for finite groups  $G$ . Special attention is paid to the case  $G = \mathbb{Z}/2$  where the spectral sequence is used to compute the cohomology of certain projective bundles and loop spaces. (Received September 08, 2008)