William C Kronholm* (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)