Meeting: 1006, Lubbock, Texas, SS 4A, Special Session on Homological Algebra and Its Applications

1006-13-77 **Sean Sather-Wagstaff** and **Diana White*** (dwhite@math.unl.edu), Department of Mathematics-203 Avery Hall, P.O. Box 880130, University of Nebraska, Lincoln, NE 68588-0130. *A generalization of the Euler characteristic to modules of finite G-dimension.* Preliminary report.

Let R be a local ring and M a finitely generated R-module. When M has finite projective dimension, the Euler characteristic is defined as the alternating sum of the Betti numbers.

Based on work of Avramov and Martsinkovsky, we generalize the notion of the Euler characteristic to a G-Euler characteristic, defined for modules of finite G-dimension. We show which basics facts about the Euler characteristic carry over to the G-Euler characteristic, and offer examples to demonstrate differences. We also present some unexpected results that arise from this invariant. (Received February 06, 2005)