

1007-16-176

**Frauke M Bleher\*** (fbleher@math.uiowa.edu), University of Iowa, Department of Mathematics, 14 MLH, Iowa City, IA 52242, and **Ted Chinburg** (ted@math.upenn.edu), University of Pennsylvania, Department of Mathematics, Philadelphia, PA 19104. *Tame actions on projective schemes over Nagata rings*. Preliminary report.

Let  $R$  be a Nagata ring, and let  $G$  be a finite group. Suppose that  $X$  is a flat projective scheme over  $R$  with a tame faithful action of  $G$ , and denote its homogeneous coordinate ring by  $S(X)$ . We consider the following two cases: (a)  $R$  is a discrete valuation ring, and (b)  $X$  is integral and  $X/G$  is regular. In case (a) we show that there is a finite set  $U$  of indecomposable  $RG$ -modules such that  $S(X)$  is a direct sum of copies of elements of  $U$ . We also show that there are polynomials associated to the multiplicities of each  $T \in U$  in the graded pieces of  $S(X)$ . In case (b) we show an analogous statement for the classes of the graded pieces of  $S(X)$  in the Grothendieck group  $G_0(RG)$ . (Received February 20, 2005)