

1089-14-297

Alexander R Duncan* (arduncan@umich.edu). *Equivariant Rational Maps and Unirationality.*

Let G be a finite group. Given two varieties with faithful G -actions, I consider the question of whether there exist equivariant rational maps between them. For rational surfaces and *birational* maps, the question has been well-studied and is related to determining the conjugacy classes of subgroups of the plane Cremona group. We discuss examples of rational G -surfaces X and Y which are not equivariantly birational but for which there exist equivariant dominant rational maps both from X to Y and from Y to X .

Of particular interest will be the class of G -unirational varieties. We say that a variety X with a faithful G -action is *G -unirational* if there exists a linear representation V and a G -equivariant dominant rational map $V \dashrightarrow X$. When $G = 1$, this corresponds to the usual notion of unirationality. We will outline connections between G -unirational varieties and arithmetic questions regarding ordinary unirationality and the existence of points. (Received February 18, 2013)