1054-16-260 **S. Paul Smith*** (smith@math.washington.edu), Dept. of Mathematics, University of Washington, Seattle, WA 98195. *Some twisted homogeneous coordinate rings related to superpotential algebras.*

The representation theory of certain quivers with relations derived from a superpotential are of interest in string theory. Typically, the associated path algebra with relations, which is called a superpotential algebra, is a noetherian algebra over the complex numbers and is a finite module over its center. An interesting case is that when the center is the coordinate ring of the "canonical cone" over a smooth projective surface S. We show that in some special cases the category of modules over the superpotential algebra is equivalent to the category of G-equivariant modules over a twisted homogeneous coordinate ring of the projective surface S for a suitable finite cyclic group G. In those cases, it is very easy to show that the center of the superpotential algebra is, as desired, the the coordinate ring of the canonical cone over S. (Received September 15, 2009)