1123-16-162 **Ellen E. Kirkman*** (kirkman@wfu.edu), Wake Forest University, Box 7388 Reynolda Station, Winston-Salem, NC 27109, and **James J. Kuzmanovich** and **James J. Zhang**. *Dual reflection group coactions.*

Let k be a field of characteristic zero, and A be an Artin-Schelter regular k-algebra that is graded by a finite group G. We call G a *dual reflection group* for A if the identity component A_e of A is also AS regular. We consider necessary conditions on (G, A) for G to be a dual reflection group for A, construct some dual reflection groups, show some groups are not dual reflection groups and some algebras have no dual reflection groups. We prove that the covariant ring, $A^{cov} = A/I$ for $I = ((A_e)_{\geq 1})$, is Frobenius. The Hopf algebra $H = k^G$ associated to a dual reflection group can be regarded as a generalization of a reflection group, since under the action of H on A the invariant subring $A^H = A_e$ is AS regular, providing a generalization of the Shephard-Todd-Chevalley Theorem, where $A = k[x_1, \ldots, x_n]$, G is a reflection group, A^G is a polynomial ring, and $k[x_1, \ldots, x_n]/I$, for $I = ({A^G}_{\geq 1})$, is a complete intersection. (Received August 24, 2016)