1012-16-199 **Ellen Kirkman*** (kirkman@wfu.edu), Department of Mathematics, Wake Forest University, Winston-Salem, NC 27109, and **James Kuzmanovich** (kuz@wfu.edu) and **James Zhang** (zhang@math.washington.edu). *Reflections of AS-Regular Algebras I.* Preliminary report.

The Shephard-Todd Theorem gives necessary and sufficient conditions for the fixed subring $k[V]^G$ of a commutative polynomial ring $k[V]$ under the action of a finite group G of automorphisms $G \subseteq \mathrm{GL}(V)$ to be a polynomial ring; namely the group must be generated by "reflections". To generalize this theorem to AS-regular algebras one seeks the proper definition of a "reflection group" of graded automorphisms of A, i.e. conditions on a group G of graded automorphisms acting on an AS-regular algebra A that force A^G to be an AS-regular algebra. We discuss some conditions that are sufficient, and find the "reflections" of the quantum plane $\mathbb{C} < x, y > /(yx - \lambda xy)$. (Received September 20, 2005)