DAVID MUNDELIUS, Technical University of Munich
Arithmetic invariants of finite pseudoreflection groups

The famous Chevalley-Shephard-Todd theorem states that the ring of invariants of a finite pseudoreflection group over a field in which the group order is invertible is always isomorphic to a polynomial ring. Smith's proof of this theorem is based on the fact that a finitely generated graded algebra over a field is isomorphic to a polynomial ring if and only if it is regular. We generalize this idea to invariants with coefficients in a ring, more precisely in a Dedekind domain. If the group order of a pseudoreflection group is invertible we can show that also in this situation the ring of invariants is regular. Moreover, we prove regularity for such rings of invariants in some cases where the group order is not invertible. Finally, we characterize finitely generated regular graded algebras over Dedekind domains.