

# Ring extensions invariant under group action: flat epimorphic extensions

*Amy Schmidt* , George Mason University, Fairfax VA – 22030

## Abstract

We continue to expand the work in invariant theory initiated by Hilbert's fourteenth problem. Let  $G$  be a subgroup of the automorphism group of a commutative ring with identity  $T$ . Then given an extension  $R \subset T$ ,  $G$  acts on  $R$ . We show  $R^G \subset T^G$  is an epimorphic ring extension whenever  $S \subset R$  is an epimorphic extension. We also show this is true in the case of flat extensions.

**Keywords:** fixed ring, ring of invariants, invariant theory, locally finite, flat extension, epimorphic extension.