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**David E. Dobbs\*** (dobbs@math.utk.edu), Department of Mathematics, University of Tennessee, Knoxville, TN 37996-1300, and **Jay Shapiro**. *Transfer of Krull dimension, lying-over and going-down to the fixed ring.*

Let  $G$  be a group acting via ring automorphisms on a commutative unital ring  $R$ . If  $\text{Spec}(R)$  has no infinite antichains, then  $R^G \subseteq R$  has the lying-over property. If  $R$  is semiquasilocal and  $\dim(R) = 0$ , then  $\dim(R^G) = 0$ . If  $1 \leq d \leq \infty$ , examples exist such that  $d = \dim(R) \neq \dim(R^G) < \infty$ . If  $G$  is profinite and  $R$  is a discrete  $G$ -module, then  $R^G \subseteq R$  is an integral extension that satisfies universally going-down. If  $G$  is locally finite on  $R$ , then  $R^G \subseteq R$  satisfies universally going-down. Consequently, if  $G$  is locally finite, the  $S$ -domain, strong  $S$ -domain and universally strong  $S$ -domain properties descend from  $R$  to  $R^G$ . If  $R$  is a domain, then  $G$  is locally finite on  $R \Leftrightarrow R$  is integral over  $R^G$ . One cannot delete the “domain” hypothesis. (Received September 21, 2005)