

1048-13-126

David E. Dobbs and **Jay Shapiro*** (jshapiro@gmu.edu), Department of Mathematics, George Mason University, Fairfax, VA 22030-4444. *Universal lying-over rings.*

A (commutative unital) ring R is said to satisfy universal lying-over (ULO) if each injective ring homomorphism $R \rightarrow T$ satisfies the lying-over property. If R satisfies ULO, then $R = \text{tq}(R)$, the total quotient ring of R . It is shown that a reduced ring satisfying ULO, also satisfies Property A. Conversely, if a ring $R = \text{tq}(R)$ satisfies Property A and each non-minimal prime ideal of R is an intersection of maximal ideals, then R satisfies ULO. If $0 \leq n \leq \infty$, there exists a reduced (resp., non-reduced) n -dimensional ring satisfying ULO. The $A + B$ construction is used to show that if $2 \leq n < \infty$, there exists an n -dimensional reduced ring R such that $R = \text{tq}(R)$, R satisfies Property A, but R does not satisfy ULO. (Received February 04, 2009)