

1053-13-100

**David E. Dobbs** and **Jay Shapiro\*** ([jshapiro@gmu.edu](mailto:jshapiro@gmu.edu)), Department of Mathematics, George Mason University, Fairfax, VA 22030-4444. *Normal pairs with zero-divisors.*

Results of Davis on normal pairs  $(R, T)$  of domains are generalized to (commutative) rings with nontrivial zero-divisors, particularly complemented rings. For instance, if  $T$  is a ring extension of an almost quasilocal complemented ring  $R$ , then  $(R, T)$  is a normal pair if and only if there is a prime ideal  $P$  of  $R$  such that  $T = R_{[P]}$ ,  $R/P$  is a valuation domain and  $PT = P$ . Examples include sufficient conditions for the “normal pair” property to be stable under formation of infinite products and  $\bowtie$  constructions. (Received August 25, 2009)