

1099-13-66

Thomas G Lucas* (tgglucas@uncc.edu). *(In)Stability of Divisorial Prime Ideals in Prüfer Domains*. Preliminary report.

Let P be a nonzero prime of a Prüfer domain R and let S be a ring between R and R_P . It is possible that P is a divisorial ideal of R while PS is not a divisorial ideal of S . Also it is possible for PS to be a divisorial ideal of S while P is not a divisorial ideal of R . We characterize when PS is a divisorial ideal of S for each ring $R \subseteq S \subseteq R_P$. Also we characterize when a maximal ideal M of R is such that there is no Prüfer domain $T \subseteq R$ with the same quotient field as R such that $M \cap T$ is a divisorial ideal of T . In addition, we present examples that illustrate the following behavior: it can occur that there is an ascending chain of Prüfer domains $R = S_0 \subsetneq S_1 \subsetneq S_2 \subsetneq \cdots \subsetneq R_P$ where PS_{2n} is never a divisorial ideal of S_{2n} and PS_{2n+1} is always a divisorial ideal of S_{2n+1} . Infinite descending chains $R = T_0 \supsetneq T_1 \supsetneq \cdots$ with similar behavior are also possible. In this case the ideals in question are the contractions $P \cap T_m$ with $P \cap T_{2n}$ never divisorial and $P \cap T_{2n+1}$ always divisorial. (Received January 23, 2014)