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*"Trace Properties and the Rings  $R(X)$  and  $R\langle X \rangle$ ".*

An integral domain  $R$  has the radical trace property (or is an  $RTP$  domain, resp. an  $LTP$  domain), if  $I(R : I)$  is a radical ideal for each nonzero noninvertible ideal  $I$  (resp.  $I(R : I)R_P = PR_P$  for each minimal prime  $P$  of  $I(R : I)$ ). Clearly each  $RTP$  domain is an  $LTP$  domain, but whether the two are equivalent is open except in certain special cases. In this project, we will study the descent of the trace properties from special overrings of and integral domain  $R$  to  $R$  itself. Also we will investigate the transfer of the trace properties to the Nagata ring  $R(x)$  and Serre's conjecture ring  $R\langle x \rangle$  in different contexts of integral domains such as integrally closed domains, Noetherian and Mori domains, pseudo-valuation domains and more. (Received August 17, 2020)