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*Tight Closure in Non-excellent Rings.*

When  $R$  is an excellent ring, tight closure has many good properties. If  $x$  is in the tight closure of an ideal  $I$  and  $\phi : R \rightarrow S$  is a homomorphism, then  $\phi(x)$  is in the tight closure of  $\phi(I)S$  - the persistence property. If  $R$  is also equidimensional, tight closure has the colon-capturing property. Here we offer examples showing that both persistence and colon-capturing can fail when  $R$  is not excellent. Finally, a variant of tight closure, general tight closure, is offered for local rings. General tight closure is found by extending the ideal to the completion of the ring, computing the tight closure, and then contracting to the original ring. General tight closure coincides with tight closure in the excellent case and seems to offer all of the good properties of tight closure more generally. (Received August 21, 2009)