1150-13-211 **Raymond C Heitmann*** (heitmann@math.utexas.edu). *Integral Closures of Noetherian Domains.*

Suppose R is a (Noetherian) local integral domain. It has long been known the integral closure of R need not be Noetherian. Interestingly, however, in all of the known examples, the completion of the integral closure is again Noetherian. In fact, Heinzer asked in 1973 whether or not the integral closure could have an infinitely generated maximal ideal and this question has remained open. This question is central to the completion problem as the completion of a non-Noetherian ring with a finitely generated maximal ideal will always be Noetherian. Here an example is constructed which has an integral closure with an infinitely generated maximal ideal. The completion of R' is not Noetherian. (Received July 09, 2019)