

1056-13-813

Erin Chamberlain* (chamberlain@math.byu.edu), Brigham Young University, Department of Mathematics, 263 TMCB, Provo, UT 84602. *Infinite Cohen-Macaulay posets and non-Noetherian Stanley-Reisner rings.*

We will extend the definition of a Cohen-Macaulay ring to the non-Noetherian setting using local cohomology. We will introduce a generalization of Reisner's theorem that the Stanley-Reisner ring of an infinite (but finite dimensional) poset is Cohen-Macaulay if and only if the associated simplicial complex is topologically Cohen-Macaulay. This has several applications, since in most cases it is easier to establish Cohen-Macaulayness algebraically than topologically. (Received September 17, 2009)