Meeting: 1003, Atlanta, Georgia, SS 20A, AMS Special Session on Commutative Algebra, I

1003-13-1130 **Janet Striuli*** (`jstriuli@math.ukans.edu`), Department of Mathematics, 405 Snow Hall, 1460 Jayhawk Blvd, Lawrence, KS 66045-7523. *Artin-Rees properties for syzygies.*

Let $(R, \mathbf{m})$ be a local Noetherian ring. We say that a finitely generated R-module has the Artin-Rees property for syzygies if there exists an integer k such that for any $n > k$ and for any i, $\mathbf{m}^n F_i \cap Z_{i+1} \subset \mathbf{m}^{n-1} Z_{i+1}$, where $\mathbb{F} = \{F_i\}$ is the minimal free resolution of M and Z_i are the modules of cycles. We say that M has the strong Artin-Rees property if $\mathbf{m}^n F_i \cap Z_{i+1} = \mathbf{m}(\mathbf{m}^{n-1} F_i \cap Z_{i+1})$ Eisenbud-Huneke proved that any finitely generated R-module which is of finite projective dimension on the punctured spectrum has the Artin-Rees property for syzygies. We investigate if the Artin-Rees property for syzygies holds for Cohen-Macaulay rings, showing an equivalent statment. We also show that the residue field of any local Noetherian ring has the strong Artin-Rees property for syzygies. (Received October 04, 2004)