

1012-13-34

**Phillip A Griffith\***, Department of Mathematics, University of Illinois, Urbana, IL 61801. *A Somewhat Different Perspective on the Ranks of Syzygies Having Finite Projective Dimension.* Preliminary report.

Let  $R$  be an equicharacteristic local ring having algebraically closed residue field and let  $E$  denote a finitely generated  $R$ -module of finite projective dimension. Theorem: If  $E$  is a  $k$ th syzygy, then  $k$  elements in  $E$  that are linearly independent modulo the maximal ideal are necessarily  $R$ -linearly independent in  $E$ . Corollary: If  $E$  represents a non-free  $k$ th syzygy of finite projective dimension, then the rank of  $E$  is at least  $k$ . The above property of  $k$ th syzygies does not characterize  $k$ th syzygies; however it may characterize certain types of submodules of  $k$ th syzygies. (Received August 05, 2005)