1087-13-217 **J Brett Barwick*** (bbarwick@uscupstate.edu). *Computing Buchsbaum-Eisenbud Matrices for Homogeneous Grade Three Gorenstein Ideals in $k[x, y, z]$.* Preliminary report.

Let $R = k[x, y, z]$ with k a field and let $I \subseteq R$ be a homogeneous grade 3 Gorenstein ideal (i.e., R/I is a Gorenstein ring). The Buchsbaum-Eisenbud Structure Theorem for grade three Gorenstein ideals shows that there exists an alternating presentation matrix ψ whose signed maximal order Pfaffians are the generators of the ideal I, up to multiplication by a unit. We will call such a matrix ψ a Buchsbaum-Eisenbud matrix for the given generating set. We describe an algorithm which can be used to compute such an alternating presentation matrix, which will not typically be produced when computing a free resolution using standard Gröbner basis techniques. (Received December 04, 2012)