1135-11-389 **Brandt Kronholm*** (brandt.kronholm@utrgv.edu), University of Texas Rio Grande Valley, Department of Mathematics, 1201 W. University Dr., Edinburg, TX 78539, **Stephanie Flores** (stephanie.flores01@utrgv.edu), University of Texas Rio Grande Valley, Department of Mathematics, 1201 W. University Dr., Edinburg, TX 78539, and **Anabel Hernandez** (anabel.hernandez01@utrgv.edu), University of Texas Rio Grande Valley, Department of Mathematics, 1201 W. University Dr., Edinburg, TX 78539. *A complete characterisation of the maximal coefficients of Gaussian polynomials of the form $\begin{bmatrix} M \\ 3 \end{bmatrix}$ and an extension of a theorem on first differences of partitions into at most three parts.*

It is well know that the coefficients of Gaussian polynomials are unimodal. Working from recent results of H. Hahn, we provide a complete characterization of the maximal coefficients of Gaussian polynomials $\begin{bmatrix} M \\ 3 \end{bmatrix}$. Our general results come from a novel manipulation of the q-series informed by polyhedral geometry in which we establish a quasipolynomial for $\begin{bmatrix} M \\ 3 \end{bmatrix}$. Additionally, we extend a theorem on first differences of partitions into at most three parts to the coefficients of Gaussian polynomials $\begin{bmatrix} M \\ 3 \end{bmatrix}$. (Received August 30, 2017)