1145-11-1497 **Brandt Kronholm*** (brandt.kronholm@utrgv.edu), Department of Mathematics, University of Texas Rio Grande Valley, Edinburg, TX 7839-2999, and **Arturo J. Martinez** (arturo.j.martinez01@utrgv.edu), Department of Mathematics, University of Texas Rio Grande Valley, Edinburg, TX 7839-2999. *A Quasipolynomial Decomposition of Partitions into at most m parts and the Coefficients of Gaussian Polynomials.* Preliminary report.

The goal of this presentation is to show that for a fixed N, all Gaussian polynomials $\begin{bmatrix} N+m \\ m \end{bmatrix}$ come in exactly $\frac{2lcm(m)}{m}$ varieties, where $lcm(m)$ represents the least common multiple of the numbers from 1 through m.

It is clear that for a fixed N, the set of partitions of n into at most m parts; $p(n,m)$ can be decomposed into two collections; partitions with parts not larger than N, denoted $p(n,m,N)$ and partitions with parts larger than N, denoted $P(n,m,N)$. In short,

$$p(n,m) = p(n,m,N) + P(n,m,N).$$

We note that $p(n,m,N)$ corresponds to the coefficients of $\begin{bmatrix} N+m \\ m \end{bmatrix}$.

It is well known that the quasipolynomial for $p(n,m)$ is periodic with period $lcm(m)$. The period for $P(n,m,N)$ is shorter. Strangely, the quasipolynomial for $p(n,m,N)$ appears not be periodic at all. We will discuss these observations and other peculiar behaviour of these functions. (Received September 22, 2018)