1037-11-356 **Alexander Berkovich*** (alexb@math.ufl.edu), Dept. of Mathematics,UF, 358 Little Hall, office 496, Gainesville, FL 32611-8105. *Title:GBG-rank of partitions and counting at roots of unity.* Preliminary report.

The new partition statistic GBG-rank mod s was defined in (math/0602362) as $\mathrm{GBG}-\mathrm{rank}(\mathrm{partition}, s) := \sum_{0=<j<s} r_j w^j$. Here $w := \exp(2\pi i/s)$ and $r_j :=$ # of cells colored j in the s-residue diagram of partition.

Let $v(s,t)$ denote the # of distinct values of $\mathrm{GBG}-\mathrm{rank}(t-\mathrm{core}, s)$. Suppose $\gcd(s,t)=1$. I will show that

1. $v(s,t) < \binom{s+t}{s}/(s+t)$,
2. $v(s,t) = \binom{s+t}{s}/(s+t)$ iff either s is prime or $t < 2p$.

Here p is a smallest prime divisor of s. This talk is based on my joint work with Frank Garvan . (Received February 05, 2008)