1078-11-61 **Brandt Kronholm*** (jkronhol@whittier.edu), Department of Mathematics, 13406 E. Philadelphia St., Whittier, CA 90608-0634. *New Ramanujan congruence properties of the restricted partition function $p(n, m)$.*

Ramanujan congruences for the unrestricted partition function $p(n)$ are well known and have been studied in great detail. $p(n, m)$ is the restricted partition function that enumerates the number of partitions of n into exactly m parts. The close relationship between $p(n)$ and $p(n, m)$ is clear:

$$p(n) = p(n, 1) + p(n, 2) + \cdots + p(n, n-1) + p(n, n).$$

Until recently, the existence of Ramanujan-type congruences was virtually unknown for $p(n, m)$. Let ℓ be any odd prime. In this presentation we will establish explicit Ramanujan-type congruences for $p(n, m)$ modulo any prime power ℓ^α. In addition, we will highlight surprising congruence properties for $p(n, m) \pmod{\ell^\alpha}$ for all n. Lastly, we will discuss several intriguing results with regard to m, the number of parts of the partition. (Received November 16, 2011)