1084-05-16 **Craig M. Timmons*** (ctimmons@ucsd.edu), UC San Diego, 9500 Gilman Dr., La Jolla, CA 92093. *Bounds for B_k^+-sets.*

A set $A \subset \mathbb{Z}$ is a B_k^+*-set* if

$$a_1 + \cdots + a_k = b_1 + \cdots + b_k \text{ with } a_1, \ldots, a_k, b_1, \ldots, b_k \in A \tag{1}$$

implies $a_i = b_j$ for some $1 \leq i, j \leq k$. A is a B_k*-set* if (1) implies $(a_1, \ldots, a_k)$ is a permutation of $(b_1, \ldots, b_k)$. The problem of determining the largest B_k-set $A \subset [N]$ has been studied extensively. In this talk we will discuss the corresponding problem for B_k^+-sets. For odd $k \geq 3$, we use a Bose-Chowla B_k-set to construct a B_k^+-set $A \subset [N]$ with $|A| = 2^{1-1/k} N^{1/k} - o(N^{1/k})$. We use a combinatorial argument to prove non-trivial upper bounds on B_3^+-sets and B_4^+-sets. (Received August 23, 2012)