1068-54-219 **Vitaly Bergelson**, **Neil Hindman** and **Kendall Williams*** (kendallist@yahoo.com). *Subsets of Elements of Tensor Products of Points in $\beta\mathbb{N}$.* Preliminary report.

A Milliken-Taylor system is a set of the form $MT(\langle a_i\rangle_{i=1}^m, \langle x_n\rangle_{n=1}^\infty) = \{\sum_{i=1}^m a_i \sum_{t\in F_i} x_t : F_1, F_2, \ldots, F_m$ are increasing finite nonempty subsets of $\mathbb{N}\}$, $a_1, a_2, \ldots, a_m \in \mathbb{Z}$, $a_m > 0$, and $\langle x_n\rangle_{n=1}^\infty$ is in $\mathbb{N}$. Given $\langle x_n\rangle_{n=1}^\infty$ in $\mathbb{N}$ and $A \subseteq \mathbb{N}$, there is a sum subsystem $\langle y_n\rangle_{n=1}^\infty$ of $\langle x_n\rangle_{n=1}^\infty$ such that the finite sums of $\langle y_n\rangle_{n=1}^\infty$, $FS(\langle y_n\rangle_{n=1}^\infty) \subseteq A$ if and only if there is an idempotent $p \in \beta\mathbb{N}$, the Stone-Čech Compactification of $\mathbb{N}$, such that $A \in p$ and for each $m \in \mathbb{N}$, $FS(\langle x_n\rangle_{n=m}^\infty) \in p$. It has been shown that there is a similar correspondence in which the finite sums are replaced by Milliken-Taylor systems and the set A in question turns out to be an element of a sum of ultrafilters (instead of just the idempotent p). We characterize this situation when A is an element of an arbitrary polynomial in finitely many variables evaluated at points of $\beta\mathbb{N}$. (Received January 18, 2011)