1135-05-986 **Heather D Jordon*** (hjordon@albion.edu), **Benjamin Abels**, **Nichole Brown** and **Alexandria Pokorny**. $\pm$*Skolem-Type Difference Sets.* Preliminary report.

For a positive integer t, a Skolem-type difference set of order t is a partition of the set $\{1, 2, \ldots, 3t\}$ into triples $\{a_i, b_i, c_i\}$ such that $a_i + b_i = c_i$. Skolem-type difference sets and their many generalizations are well studied, and necessary and sufficient conditions for Skolem difference sets are known. A practical application of Skolem-type difference sets involves rewriting the triple $\{a_i, b_i, c_i\}$ as $a_i + b_i + c_i = 0$ where c_i is necessarily negative. Hence, we study $\pm$Skolem-type difference sets of order $2t$ which are partitions of the set $\{\pm 1, \pm 2, \ldots, \pm 3t\}$ into triples $\{a_i, b_i, c_i\}$ such that $a_i + b_i + c_i = 0$. We also study a Langford-type generalization of this concept, namely, partitions of the set $\{\pm d, \pm(d+1), \ldots, \pm(d+3t-1)\}$ into into $2t$ triples $\{a_i, b_i, c_i\}$ such that $a_i + b_i + c_i = 0$ for $d = 2$ and $d = 3$. (Received September 18, 2017)