1035-05-508 Ian Rogers* (rogersia@rose-hulman.edu). Some Results on Antidesigns. Preliminary report.
Given the set $[V]=\{1,2,3, \ldots, V\}$, we form a collection of $k$-element subsets of $V$, which we shall refer to as blocks. The blocks in the collection need not be distinct. If each $t$-element subset of $[V]$ appears in a different number of blocks in the collection, then we have a $V, k, t$ antidesign, denoted $A D(V, k, t)$. If each exactly one $t$-subset appears $i$ times for each $1 \leq i \leq\binom{ V}{t}$, then we call the collection a strict antidesign, denoted $S A D(V, k, t)$.

We investigate herein some necessary and sufficient conditions for the existence of ADs and SADs for various values of $V, k$, and $t$. Further, we present examples of such antidesigns for certain values, and investigate threshold results relating to the probability of creating an antidesign through the random selection of blocks. Finally, we shall present as yet unsolved problems relating to this type of antidesign. (Received September 10, 2007)

