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John T Griesmer*, jtgriesmer@gmail.com. *Title: Sumsets with one dense and one infinite summand.*

Abstract: We study sets of integers of the form $A + B := \{a + b \mid a \in A, b \in B\}$, where A is infinite and B has positive upper Banach density. We exploit a spectral property of the special measure preserving systems (nilsystems) which arise in the study of dense sets of integers, and we find that under our hypotheses, $A + B$ must contain many kinds of finite configurations which may not appear in an arbitrary dense set of integers. This investigation leads to some natural and elementary questions about sets of (single) recurrence. (Received February 18, 2013)