Meeting: 1007, Santa Barbara, California, SS 3A, Special Session on Recent Advances in Combinatorial Number Theory

1007-05-49 **Van Vu*** (`vanvu@ucsd.edu`), Department of Mathematics, UCSD, 9500 Gilman Drive, La Jolla, CA 92093-0112. *Long range inverse techniques.*

For a set A and a positive integer l, lA denotes the set of numbers representable as a sum of l elements of A. Similarly l^*A denotes the set of numbers representable as a sum of l different elements of A.

Freiman's invese theorem is a powerful tool for proving properties of a set A, knowing some bound on the size of $2A$ or 2^*A. We will show how to use this theorem when we only know something about $lA = A$ or l^*A, when l is a large number which can be as large as the cardinality of A.

These techniques, which we call long range inverse techniques, appear useful in many applications, for instance the recent results of Szemeredi and Vu on arithmetic prgressions in sumsets. (Received January 09, 2005)