Meeting: 1005, Newark, Delaware, SS 16A, Special Session on Probabilistic Paradigms in Combinatorics

1005-05-184 **Joshua N. Cooper*** (cooper@cims.nyu.edu), 251 Mercer St., New York, NY 10012. *A Permutation Regularity Lemma.*

We introduce a permutation analogue of the celebrated Szemerédi Regularity Lemma, and derive a number of consequences. This tool allows us to provide a structural description of permutations which avoid a specified pattern, a result that permutations which scatter small intervals contain all possible patterns of a given size, a proof that every permutation avoiding a specified pattern has a nearly monotone linear-sized subset, and a "thin deletion" result. We also show how one can count sub-patterns of a permutation with an integral, and relate our results to permutation quasirandomness in a manner analogous to the graph-theoretic setting. (Received February 08, 2005)