1161-05-280 **He Guo*** (he.guo@gatech.edu), 686 Cherry Street, School of Mathematics, Georgia Institute of Technology, Atlanta, GA 30332, and **Lutz Warnke**. *On the power of random greedy algorithms.*

In recent years, as part of the maturation of the probabilistic method, random greedy algorithms have been successfully used to show the existence of hard-to-construct combinatorial objects. In particular, some of the best-known Ramsey and Turán bounds are obtained via the graphs produced by the H-free process. In this talk we explore the random greedy paradigm in the context of additive combinatorics. We improve the best-known lower bound on the van der Waerden numbers $W(r,t)$, by analyzing the r-term arithmetic progression free process (which proceeds by step-by-step adding random integers from $[n]$ that avoid the creation of r-term arithmetic progressions).

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