1070-28-230 **Randall McCutcheon*** (rmcctchn@memphis.edu), Department of Mathematical Sciences, 373 Dunn Hall, University of Memphis, Memphis, TN 38152. *On the size of the wildcard set in the IP Szemeredi and density Hales-Jewett theorems.* Preliminary report.

Furstenberg and Katznelson proved that the common difference of the arithmetic guaranteed to exist in any set of positive upper density by Szemeredi's theorem may be chosen from any IP set, namely from the set of finite sums of an arbitrary sequence. Our main theorem is a polynomial version of this fact. One may for example require the common difference of the progression to be a sum obtained by summing a square number of elements from the given arbitrary sequence. A similar conjecture, on which some progress has been made, may be formulated for the density Hales-Jewett theorem. (Received February 13, 2011)