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**Shore.** *Homogeneous Models and Weak Combinatorial Principles II*. Preliminary report.

Following up on the talk by Richard Shore, this talk will describe the new combinatorial principles arising from our work on homogeneous models, and their reverse mathematical interactions with model theoretic and induction principles. One family of principles we consider includes the principle  $\Pi_1^0G$ , which is closely related to the Atomic Model Theorem and was analyzed in the setting of reverse mathematics by Hirschfeldt, Shore, and Slaman [The Atomic Model Theorem and Type Omitting, *Trans. Amer. Math. Soc.* 361 (2009) 5805–5837]. This principle states that for any uniformly  $\Pi_1^0$  collection of sets of strings  $D_0, D_1, \dots$ , each of which is dense in  $2^{<\mathbb{N}}$ , there is a generic real  $G$  meeting all of the  $D_i$ . We introduce a weaker principle  $\Pi_1^0GA$  that posits not the existence of  $G$  itself, but of an approximation to  $G$ . This principle is strictly weaker than  $I\Sigma_2$ , but implies  $I\Sigma_2$  over  $B\Sigma_2$ . We also consider higher-level versions  $\Pi_n^0GA$  that exhibit similar behavior. (Received September 24, 2012)