Meeting: 1003, Atlanta, Georgia, SS 6A, AMS-ASL Special Session on Reverse Mathematics, I

1003-03-845 **Denis R. Hirschfeldt*** (drh@math.uchicago.edu), Department of Mathematics, University of Chicago, 5734 S. University Ave., Chicago, IL 60637. *Degrees of Infinite Homogeneous Sets for Computable Stable Colorings of Pairs.* Preliminary report.

The reverse-mathematical analysis of combinatorial principles related to Ramsey's Theorem for pairs has yielded a rich collection of computability-theoretic results. One of the driving questions in the area is whether Stable Ramsey's Theorem for pairs (SRT^2_2) implies Ramsey's Theorem for pairs (RT^2_2). One approach to this problem is to try to bound the complexity of homogeneous sets for computable stable colorings of pairs. Downey, Hirschfeldt, Lempp, and Solomon dealt a blow to this approach by building such a coloring with no low infinite homogeneous set, but there is still some hope along these lines.

Mileti showed that $\mathbf{0'}$ is the only Δ^0_2 degree that can compute an infinite homogeneous set for any computable stable coloring of pairs. He asked whether there is a single computable stable coloring of pairs such that every infinite Δ^0_2 homogeneous set is complete. I have answered this question negatively. If this result can be extended to show that every computable stable coloring of pairs has an infinite homogeneous set that is both Δ^0_2 and low_2 (or even just low_n for some n), then, as I will explain in this talk, it should be possible to build a model of SRT^2_2 that is not a model of RT^2_2. (Received September 30, 2004)