Meeting: 1003, Atlanta, Georgia, AMS CP 1, AMS Contributed Paper Session

1003-05-1320 **Melody T. Chan*** (melody.chan@yale.edu), PO Box 205981, New Haven, CT 06520-5981. *The distinguishing number of group actions.*

Let G be a group acting faithfully on a set X. The distinguishing number of the action of G on X, denoted $D_G(X)$, is the smallest number of colors such that there exists a coloring of X where no nontrivial group element induces a color-preserving permutation of X. We show that if a group is nilpotent of class c or supersolvable of length c then G always acts with distinguishing number at most $c+1$. We also characterize the distinguishing number of the wreath product of two groups in its action on the Cartesian product of their sets, and give a recursive formula for the distinguishing number of the direct product of two symmetric groups in its action on the Cartesian product of their sets. (Received October 04, 2004)