1060-05-225 **Debra L Boutin*** (dboutin@hamilton.edu), Department of Mathematics, Hamilton College, Clinton, NY 13323. *The Cost of 2-Distinguishing.*

A graph G is said to be 2-*distinguishable* if there is a coloring of the vertices with two colors so that only the trivial automorphism preserves the vertex colors. Denote the minimum size of a color class in such a coloring by $\rho(G)$. If we consider 2-distinguishing the graph by coloring one label class of vertices red and not coloring the other, ρ tells us the minimum number of vertices we need to color to break all symmetry. Thus we call $\rho(G)$ the *cost of 2-distinguishing* G. There is a natural relationship between a smallest color class in a 2-distinguishing coloring and a determining set for the graph. (A *determining set* is a set of vertices whose pointwise stabilizer is trivial.) In this talk we will define the cost of 2-distinguishing, explore some examples, relate the cost to the minimum size of a determining set, and ultimately show that $\rho(Q_n) = \Theta(\log n)$. (Received March 30, 2010)