1046-05-1812 **Daniel Schaal*** (daniel.schaal@sdstate.edu), Dept. of Mathematics and Statistics, South Dakota State University, Brookings, SD 57007, and **Mike Bergwell** and **Scott Jones**. *Selectivity Schur Numbers for a Finite Number of Colors.*

In 1916, I. Schur proved the following theorem. For every integer t greater than or equal to 2, there exists a least integer n = S(t) such that for every coloring of the integers in the set 1, 2, ... , n with t colors there exists a monochromatic solution to x + y = z. This equation is called the Schur equation and the integers S(t) are called Schur numbers and are known only for t = 2, t = 3 and t = 4. This problem can be modified by also considering solutions where the three integers in the solution are all colored different colors, known as a totally multicolored solution (also known as a polychromatic or rainbow solution). A solution that is either monochromatic or totally multicolored is called a selectivity solution. It has long been known that if an infinite number of colors are used, it is possible to color the entire set of natural numbers and avoid a selectivity solution to the Schur equation. In this paper we find the longest colorings that avoid selectivity solutions to the Schur equation for any finite number of colors. (Received September 16, 2008)