Meeting: 998, Houston, Texas, SS 1A, Special Session on Graph Theory and Combinatorics

998-05-418 **Nathaniel Daan*** (dean_nx@tsu.edu), Department of Mathematical Sciences, NSC 139, Texas Southern University, Houston, TX 77459, and **Jessica Zuniga** (jvz2@cornell.edu), 120 Malott Hall, Cornell University, Ithaca, NY 14853. *The Square Cycle Problem.* Preliminary report.

The square cycle problem, first posed by H. C. Morris in Mathematics Magazine, requires the elimination of a minimum number of points in a square integer lattice so that no square cycle remains. For an $n \times n$ lattice this minimum $M(n)$ can be found easily for small values of n, but as n increases the difficulty grows rapidly. This paper extends the known computational results, studies characteristics of optimal solutions, and from these findings develops better lower bounds for $M(n)$. In addition, several variations of the problem are considered. (Received March 02, 2004)