**Bilkent University
Department of Mathematics**

Problem Of The Month

Term: January 2014

All unit squares of 2014×2014 grid A are colored either white or black. Consider all
$2014!$ colored grids obtained from A by all possible column permutations. What is the
maximal possible number of distinctly colored main diagonals (diagonals starting at the
lowest unit square of the leftmost column)?