1114-15-178 **Persi Diaconis*** (`diaconis@math.stanford.edu`). *The Kac-Murdoch-Szegő Theorem and the Heisenberg Group.*

In studying simple random walk on the Heisenberg group (3 x 3 uni-upper triangular matrices with entries in Z) a crop of large matrices needed to be diagonalized. Things like n x n matrices with cos((2pi j)/n) down the main diagonal and ones on the super and sub diagonal. We find sharp bounds for the top (and bottom) eigenvalues and a nice description of the bulk of the spectrum. This is joint work with Dan Bump, Angela Hicks, Laurent Miclo, and Harold Widom. (Received August 25, 2015)