1030-62-137   **Nicholas Eriksson*** (`nke@stanford.edu`), 621 S. Plymouth Ct Apt 501, Chicago, IL 60605, and **Persi Diaconis**. *Fourier analysis and statistics on groups.*

Group-valued data arises in many contexts: rankings of n objects gives data on S_n (by counting how many times each permutation occurs), the set of 5-4 Supreme Court decisions gives data on $S_9/(S_4 \times S_5)$, random unitary matrices give data on U_n, etc. These datasets can be analyzed using non-commutative Fourier analysis. I will give several examples of data on finite and infinite groups and explain the combinatorial and algebraic problems that arise. In particular, I will show how toric ideals can be used to analyze ranking data and how Schur polynomials can tell whether a collection of matrices is really "random". (Received July 29, 2007)