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**Ann Johnston\*** (ajohnston@hmc.edu), **Michael Orrison** (orrison@hmc.edu) and **Michael Hansen** (mhansen@gmail.com). *Markov Bases for Noncommutative Harmonic Analysis of Partially Ranked Data*. Preliminary report.

In their 1998 paper, Persi Diaconis and Bernd Sturmfels introduced a technique for determining the significance of different summary statistics on a data set, given a fixed summary statistic, that uses a Markov process to generate a representative sample space conditioned on the fixed statistic. This method has been used in studying fully ranked data and approval voting data, and we now extend it to the study of partially ranked voting data. This involves the computation of a reduced Gröbner basis for the toric ideal of the fixed summary statistic, which forms a Markov basis for the desired sample space. (Received December 31, 2010)