1145-VT-2353   **Alperen Ozdemir*** (`aozdemir@usc.edu`), 3620 S. Vermont Ave., KAP 104, Los Angeles, CA
90089-2532. *A fast mixing Markov chain on the symmetric group.*

Consider a Markov chain on the symmetric group where at each step a permutation is chosen with respect to probabilities that are exponentially proportional to the number of cycles and multiplied by the permutation at the current state. In this talk, I will discuss the algebraic combinatorics techniques used to identify the eigenvalues of the transition matrix. Then I will focus on the mixing time analysis and show a total variation cutoff result. The results will be compared to the case of random walks generated by single conjugacy classes, e.g. random transposition walk on the symmetric group. (Received September 25, 2018)