1154-05-280 **Harry Crane**, **Stephen DeSalvo** and **Sergi Elizalde*** (`sergi.elizalde@dartmouth.edu`), Department of Mathematics, 6188 Kemeny Hall, Hanover, NH 03755. *The probability of avoiding consecutive patterns in the Mallows distribution.*

We use combinatorial and probabilistic techniques to study growth rates for the probability that a random permutation from the Mallows distribution avoids consecutive patterns. The Mallows distribution is a q-analogue of the uniform distribution weighting each permutation by $q^{\#\text{inversions}}$. We prove that the growth rate exists for all patterns and all positive real values of q, and we generalize Goulden and Jackson's cluster method to keep track of the number of inversions in permutations avoiding a given consecutive pattern. Using singularity analysis, we approximate the growth rates for length-3 patterns, monotone patterns, and some non-overlapping patterns. We also show that, under certain assumptions, the number of occurrences of a given pattern is well approximated by the normal distribution. (Received August 28, 2019)