

1102-05-59

**Bruce E Sagan\*** ([sagan@math.msu.edu](mailto:sagan@math.msu.edu)). *Pattern avoidance and quasisymmetric functions*. Preliminary report.

Let  $S_n$  denote the  $n$ th symmetric group. Given a set  $\Pi$  of permutations we let  $S_n(\Pi)$  be all permutations in  $S_n$  which avoid all elements of  $\Pi$ . Following a suggestion of Woo, we look at the associated generating function defined by  $Q_n(\Pi) = \sum_{\sigma \in S_n(\Pi)} F_{\text{Des } \sigma}$  where  $\text{Des } \sigma$  is the descent set of  $\sigma$  and  $F$  is the associated fundamental quasisymmetric function. In particular, we investigate when it is a symmetric function and, in such cases, try to determine the coefficients of its expansion in the Schur basis. This leads to an interesting problem in the representation theory of  $S_n$ . (Received July 13, 2014)