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Jonah K Ostroff*, 300 N College St., Northfield, MN 55057, and **David Lonoff**, 300 N College St., Northfield, MN 55057. *Symmetric Permutations Avoiding a Pattern of Length Three and a Pattern of Length Four.*

Symmetric pattern-avoiding permutations are restricted permutations which are invariant under actions of certain subgroups of D_4 , the symmetry group of a square. We examine pattern-avoiding permutations with 180° rotational-symmetry. In particular, we use combinatorial techniques to enumerate symmetric permutations which avoid one pattern of length three and one pattern of length four. The resulting sequences involve well-known sequences such as the alternating Fibonacci numbers, Catalan numbers, triangular numbers, and powers of two. (Received September 19, 2007)