1083-05-58 **Nicholas A. Loehr**, **Jeffrey B. Remmel** and **Bruce E. Sagan*** (sagan@math.msu.edu). *A factorization theorem for m-rook placements.* Preliminary report.

Let $B = (b_1, b_2, \ldots, b_n)$ be an integer partition where the parts are listed in weakly increasing order. We also consider B as a Ferrers board where b_j is the height of column j and the columns are bottom justified. Letting $r_k(B)$ denote the number of placements of k rooks on any board B and $x\downarrow_k = (x)(x-1)\cdots(x-k+1)$, we have the famous Factorization Theorem of Goldman-Joichi-White which states that for any Ferrers board as above we have $\sum_{k\geq 0} r_k(B) x\downarrow_{n-k} = \prod_j (x + b_j - j + 1)$. Briggs and Remmel considered a generalization of rook placements to m-rook placements which are related to wreath products $C_m \wr S_N$ where C_m is a cyclic group and S_N a symmetric group. Ordinary rook placements correspond to the case $m = 1$. They were able to prove a version of the Factorization Theorem in this setting, but only for certain Ferrers boards. We give a generalization which holds for all Ferrers boards. (Received August 14, 2012)