1083-05-231 **Jeffrey E Liese***, jliese@calpoly.edu, and **B K Miceli** and **J B Remmel**. *Connection coefficients between generalized rising and falling factorial bases.*

Several product formulas for rook polynomials have appeared somewhat recently in the literature. For example, Goldman, Joichi and White showed that for any Ferrers board $B = F(b_1, \ldots, b_n)$,

$$\prod_{i=1}^{n} (x + b_i - (i-1)) = \sum_{k=0}^{n} r_k(B)(x)\downarrow_{n-k} . \tag{1}$$

where $r_k(B)$ is the k-th rook number of B and $(x)\downarrow_k = x(x-1)\cdots(x-(k-1)$ is the usual falling factorial polynomial

Similar formulas where $r_k(B)$ is replaced by some appropriate generalization of the k-th rook number and the falling factorial is replaced by a slightly more general rising or falling factorial polynomial, such as $(x)\uparrow_{k,j} = x(x+j)\cdots(x+j(k-1))$ or $(x)\downarrow_{k,j} = x(x-j)\cdots(x-j(k-1))$ can be found in the work of Goldman and Haglund, Remmel and Wachs, Haglund and Remmel and Briggs and Remmel.

Miceli and Remmel then provided a fairly robust rook model that specializes to the types of product formulas mentioned above including q and p,q analogues. In joint work with Miceli and Remmel, we aimed to use this rook model to provide combinatorial interpretations for the connection coefficients between generalized rising and falling factorial polynomials and this talk will focus on these interpretations. (Received August 29, 2012)