1083-05-81 **Brian K. Miceli*** (bmiceli@trinity.edu), Mathematics Department, One Trinity Place, San Antonio, TX 78213. *A rook model for poly-Stirling numbers.*

Let $p(x)$ denote a polynomial and consider the recursion

$$S(n+1,k,p(x)) = S(n,k-1,p(x)) + p(k)S(n,k,p(x)),$$

where $S(0,0,p(x)) = 1$ and $S(n,k,p(x)) = 0$ if $n < k$ or $k < 0$. We call such numbers *poly-Stirling numbers of the second kind*. In the case where $p(x) = x$, this recursive formula defines the well-known classical Stirling numbers of the second kind, and in the case where $p(x) = x^2$ this recursive formula defines the triangle central factorial numbers. In this talk we define a rook theory model which gives a combinatorial interpretation of poly-Stirling numbers for general $p(x)$ with nonnegative, integer coefficients. We also define two q-analogues of this formula and give corresponding rook theoretic interpretations. (Received August 19, 2012)