1063-60-76   **Don Paul Rawlings*** (`drawling@calpoly.edu`), 1 Grand Avenue, Mathematics Department, California Polytechnic State University, San Luis Obispo, CA 93407. *Variations of the Absorption Process: Probabilistic Models for q-identities in Combinatorics and Number Theory.*

Several variations of Blomqvist's absorption process will be presented and used to provide probabilistic proofs of q-identities ranging from properties of the Gaussian polynomials to product expansions of basic hypergeometric series to extensions of Mahonian statistics. One of the variations of Blomqvist's absorption process to be discussed links the incomplete q-Eulerian polynomials to sequential search processes (which include proof reading and Russian roulette). Other variations to be considered involve q-Poisson distributions and provide probabilistic proofs for some of Euler's number theoretic (or partition) identities. (Received August 05, 2010)