1015-05-95   **Edward Arroyo*** (`earroyo@fmarion.edu`) and **Fangjun Arroyo** (`farroyo@fmarion.edu`). *The General Gamma-compatible Rook Polynomials.*

Rook placements and rook polynomials have been studied by mathematicians since the early 1970's. Since then many relationships between rook placements and other subjects have been discovered, including applications to chromatic polynomials of graphs, Mobius inversion, the umbral calculus and q-analogues of Stirling numbers. In a series of papers published in Discrete Mathematics, K. Ding introduced the rook length polynomials and the gamma-compatible rook length polynomials. He used these polynomials to establish a connection between rook placements and algebraic geometry for the first time. Unfortunately, K. Ding presented formulas for the gamma-compatible rook length polynomials for special cases only. In our talk, we will give explicit and recurrence formulas for the gamma-compatible rook length polynomials in more general cases than considered by K. Ding. In particular, we extend the formulas for the rook length polynomial in the parabolic case to the more general gamma-compatible rook length polynomial. (Received January 28, 2006)