1125-33-138   **Siddhartha Sahi*** (`sahi@math.rutgers.edu`), Department of Mathematics, Rutgers University, New Brunswick, NJ 08903. *Macdonald hypergeometric functions.*

Hypergeometric functions for symmetric matrices were introduced in the 1950's by Herz, who gave an inductive definition using the Laplace transform. Subsequently Constantine obtained an explicit series expansion in terms of the zonal polynomials. These have found considerable applications in multivariate statistics, especially in the theory of non-central distributions.

In the 1980's I.G. Macdonald proposed a one-parameter generalization of this theory, replacing zonal polynomials by Jack polynomials. However many of the results in this more general theory remained conjectural. We will present solutions to several of these conjectures, obtained in joint work with Gestur Olafsson. As s a further application of the theory, we derive a generalization of Ramanujan's "master theorem" to the setting of Jack polynomials. (Received August 03, 2016)