Convolution structures associated with Heckman-Opdam polynomials

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There is a well-established theory of hypergeometric functions associated to root systems due to Heckman, Opdam and Cherednik. This theory encompasses the theory of spherical functions on Riemannian symmetric spaces.

We consider in this talk the compact symmetric space U/K, where $U = SU(p+q)$ and $K = S(U(p) \times U(q))$ (or $U = Sp(p+q)$ and $K = Sp(p) \times Sp(q)$). The spherical functions of U/K are hypergeometric functions associated to the root system BC_q. Since U is compact only certain parameters occur and so the spherical functions are (Heckman-Opdam-) Jacobi-Polynomials.

We extend the natural double coset hypergroup structure on $K \setminus U/K$ to a continuous class of compact hypergroups and identify the corresponding dual, Haar and Plancherel measure.