

# QUADRATIC ALGEBRAS OF ORTHOGONAL POLYNOMIALS

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In this talk, we will discuss the connection between superintegrable systems and classical systems of orthogonal polynomials in particular in the expansion coefficients between separable coordinate systems, related to representations of the (quadratic) symmetry algebras. This connection allows us to extend the Askey scheme of classical orthogonal polynomials and the limiting processes within the scheme. In particular, for superintegrable systems in 3D, the polynomial representations of quadratic algebras are given in terms of two-variable polynomials and the two-variable analog of the Askey scheme, including the quadratic Racah algebra, will be discussed.