ULTRASPHERICAL TYPE GENERATING FUNCTIONS FOR ORTHOGONAL POLYNOMIALS

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Abstract: We characterize, under some technical assumptions and up to a conjecture, probability distributions of finite all order moments with ultraspherical type generating functions for orthogonal polynomials. Our method is based on differential equations and the obtained measures are particular beta distributions. We actually recover the free Meixner family of probability distributions so that our method gives a new approach to the characterization of free Meixner distributions.

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