

ON SOME PROPERTIES OF A FAMILY OF JACOBI POLYNOMIALS ARISING IN THE EVALUATION
OF INTEGRALS

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In this talk I will discuss some properties related to the Jacobi Polynomials with non classical parameters of the form $\alpha_m = m + 1/2$ and $\beta_m = -m - 1/2$. First I will present two different approaches for the computation of the moments, one of them is an explicit computation by parametrization of the contour, and the other is by using residue Theorem. I will present a relation between the moments and the generating function of the weights. Finally, I will discuss the asymptotic behavior of the zeros of these polynomials, which is related to a limit case of the results found in [KM04].

These problems appeared in the search for the definite integral of the negative power of a quartic polynomial.

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