

The Ratio Monotonicity of the Boros-Moll Polynomials

William Y. C. Chen and Ernest X. W. Xia

Abstract: In their study of a quartic integral, Boros and Moll discovered a special class of Jacobi polynomials, which we call the Boros-Moll polynomials. Kauers and Paule proved the conjecture of Moll that these polynomials are log-concave. In this paper, we show that the Boros-Moll polynomials possess the ratio monotone property which implies the log-concavity and the spiral property. We conclude with a conjecture which is stronger than Moll's conjecture on the ∞ -log-concavity.

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Keywords: ratio monotone property, spiral property, unimodality, log-concavity, Jacobi polynomials, Boros-Moll polynomials

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