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An alternative to Mahler Measure of polynomials

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Abstract. We introduce the ratio of the number of roots of a polynomial P_d , greater than one in modulus, to its degree d as an alternative to Mahler measure. We investigate some properties of the limit ratio. We generalise this definition for a two variable polynomial $P(x, y)$ using the Cauchy's argument principle. We present an algorithm for calculating the limit ratio and a numerical method for its approximation. We estimated the limit ratio for some families of polynomials. Some examples of polynomials in two variables suggest a theorem for the limit ratio which is analogous to the Boyd-Lawton limit formula for Mahler measure.

Keywords: Mahler measure; argument principle; limit ratio.

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