

ICM-9011-04 A Detailed Numerical Examination of the Tracking of the Zeros of $F_\lambda(z)$ to Produce a Lower Bound for the de Bruijn-Newman Constant Λ , T.S. Norfolk, A. Ruttan and R.S. Varga.

ABSTRACT: A new constructive method is given here for determining lower bounds for the de Bruijn-Newman constant Λ , which is related to the Riemann Hypothesis. This method depends on directly tracking real and nonreal zeros of an entire function $F_\lambda(z)$, where $\lambda < 0$, instead of finding, as was previously done, nonreal zeros of associated Jensen polynomials. We apply this new method to obtain the new lower bound for Λ ,

$$-0.385 < \Lambda,$$

which improves previous published lower bounds of -50 and -5 .