

ON THE ZEROS OF A CLASS OF POLYNOMIALS

W. M. SHAH AND A. LIMAN

Abstract. In this paper we prove some results concerning the distribution of the zeros of a polynomial in the complex plane. Our results not only contain some known generalizations of Eneström-Kakeya theorem but also a variety of interesting results can be deduced from them by a fairly uniform procedure.

Mathematics subject classification (2000): 30C10, 30C15.

Key words and phrases: Polynomials, modulii of the zeros, Eneström-Kakeya theorem.

REFERENCES

- [1] A. AZIZ, Q. G. MOHAMMAD, *Zero-free regions for polynomials and some generalizations of Eneström-Kakeya theorem*, Cand. Math. Bull., **27**, (1984), 265–272.
- [2] A. AZIZ, Q. G. MOHAMMAD, *On the zeros of a certain class of polynomials and related analytic functions*, J. Math. Anal. Appl., **75**, (1980), 495–502.
- [3] A. AZIZ, W. M. SHAH, *On the zeros of polynomials and related analytic functions*, Glasnik Mate., **33**, (1998), 173–184.
- [4] G. T. CARGO, O. SHISHA, *Zeros of polynomials and fractional order differences of their coefficients*, J. Math. Anal. Appl., **7**, (1963), 176–182.
- [5] K. K. DEWAN, M. BIDKHAM, *On the Eneström-Kakeya theorem*, J. Math. Anal. Appl., **180**, (1993), 29–36.
- [6] R. B. GARDNER, N. K. GOVIL, *On the location of the zeros of a polynomial*, J. Approx. Theory, **76**, (1994), 286–292.
- [7] N. K. GOVIL, V. K. JAIN, *On the Eneström-Kakeya theorem II*, J. Approx Theory, **22**, (1978), 1–10.
- [8] N. K. GOVIL, Q. I. RAHMAN, *On the Eneström-Kakeya theorem II*, Tohoku Math. J., **20**, (1968), 126–136.
- [9] N. K. GOVIL, Q. I. RAHMAN AND G. SCHMEISSER, *On the derivative of a polynomial*, Illinois, Math. Jour., **23**, (1979), 319–329.
- [10] A. JOYAL, G. LABELLE AND Q. I. RAHMAN, *On the location of zeros of polynomials*, Canad. Math. Bull., **10**, (1967), 53–63.
- [11] M. MARDEN, *Geometry of Polynomials*, IIInd Ed. Math. Surveys 3, Amer. Math. Soc., Providence, RI, (1966).
- [12] G. V. MILOVANOVIC, D. S. MITRINOVIC AND TH. M. RASSIAS, *Topics in Polynomials, Extremal Problems, Inequalities, Zeros*, World Scientific, Singapore (1994).