

BERNSTEIN TYPE INEQUALITIES FOR SCHUR–SZEGÖ COMPOSITION OF POLYNOMIALS

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Abstract. In this paper we prove some inequalities for Schur-Szegő composition of polynomials, which inter-alia include classical Bernstein type inequalities for polynomials with restricted zeros.

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REFERENCES

- [1] N. C. ANKENY AND T. J. RIVILIN, *On a theorem of S. Bernstein*, Pacific J. Math., **5** (1955) 849–852.
- [2] A. AZIZ AND Q. M. DAWOOD, *Inequalities for a polynomial and its derivative*, J. Approx. Theory, **54** (1988) 306–313.
- [3] S. BERNSTEIN, *Sur la limitations des dérivées des polynômes*, C. R. Math Acad. Sci. Paris, **190** (1930) 338–314.
- [4] P. D. LAX, *Proof of a conjecture of P. Erdős on the derivative of a polynomial*, Bull. Amer. Math. Soc., **50** (1944) 509–513.
- [5] M. MARDEN, *Geometry of Polynomials*, Math. Surveys, **3**, Amer. Math. Soc. Providence, RI, 1949.
- [6] Q. I. RAHMAN, G. SCHMEISSER, *Analytic Theory of Polynomials*, Oxford University Press New York, 2002.
- [7] S. GULZAR AND N. A. RATHER, *On a Composition preserving Inequalities between Polynomials*, J. Cont. Math. Anal. (Armenian Academy Sciences) **53** (2018) 21–26.
- [8] C. VISSER, *A Simple proof of certain inequalities concerning polynomials*, Koninkl. Nederl. Akad. Wetensch. Proc., **47** (1945) 276–281.