Journal of Mathematical Inequalities
Volume 7, Number 4 (2013), 587–592
doi:10.7153/jmi-07-55

ON SOME BOUNDS FOR REAL PARTS OF THE CRITICAL POINTS OF POLYNOMIALS

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Abstract. Using recent results on companion matrices and some bounds for eigenvalues we get inequalities for real parts of the critical points of polynomials.

Mathematics subject classification (2010): 15A18, 15A42, 30C15.
Keywords and phrases: companion matrices, zeros and critical points of polynomials.

REFERENCES

[1] M. ADM AND F. KITTANEH, *Bounds and majorization relation for the critical points of polynomials*, Linear Algebra and its Applications **436** (2012), 2494–2503.
[2] R. BHATIA, *Matrix Analysis*, Springer-Verlag, New York, 1997.
[3] W. S. CHEUNG AND T. W. NG, *A companion matrix approach to the study of zeros and critical points of a polynomial*, J. Math. Anal. Appl. **319** (2006), 690–707.
[4] F. KITTANEH, *Singular values of companion matrices and bounds on zeros of polynomials*, SIAM J. Matrix Anal. Appl. **16** (1995), 333–340.
[5] H. LINDEN, *Bounds for the zeros of polynomials from eigenvalues and singular values of some companionmatrices*, Linear Algebra Appl. **271** (1998), 41–82.
[6] X. ZHAN, *Matrix Inequalities*, Springer-Verlag, New York, 2002.

Paper JMI-07-55