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Restrictions on the zeros of a polynomial as a consequence of conditions on the coefficients of even powers and odd powers of the variable. (English summary)

Approximation theory, wavelets and numerical analysis (Chattanooga, TN, 2001).
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Concerning the location of the zeros of a polynomial, the classical Eneström-Kakeya Theorem states that if $p(z) = \sum_{\nu=0}^{n} a_\nu z^\nu$ is a polynomial satisfying $0 \le a_0 \le a_1 \le \cdots \le a_n$, then all the zeros of $p(z)$ lie in the region $|z| \le 1$, of the complex plane. In the literature, many generalizations of the Eneström-Kakeya Theorem exist which put various conditions on the coefficients of the polynomial (such as monotonicity of the moduli of the coefficients). In this paper the authors prove several results by putting conditions on the coefficients of even powers of z and on the coefficients of the odd powers of z. They also give examples of the polynomials to which the results proved in this paper are applicable but the earlier related known results are either not applicable or give a bound less sharp than that obtainable from the results proved in this paper.

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Note: This list reflects references listed in the original paper as accurately as possible with no attempt to correct errors.