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Polynomial root bounds using intercylic companion matrices

Using matrix norms, the Frobenius companion matrix has been used to provide bounds on the roots of a monic polynomial. More recently, Fiedler companion matrices have been explored as a source of sharper bounds on the root of a polynomial. We extend some of these results to the larger class of intercylic companion matrices and compare the new bounds with the old. We include indirect techniques involving the inverse matrix and the monic reversal polynomial.

Joint work with Trevor Vanderwoerd