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*Variational Analysis and the Roots of Polynomials*

In a number of applications to stability and control one is interested in the behavior of certain functions of the roots of a polynomial as the polynomial varies. For example, how does the maximum modulus of the roots of a polynomial change as the coefficients of the polynomial varies?

In this talk we show how convex the geometry of the sets of roots of a polynomial and its derivative can be used to give insight into the variational behavior of such functions.