

---

**PIETRO PAPARELLA**, University of Washington Bothell

*Matricial Proofs of Some Classical Results about Critical Point Location*

The Gauss–Lucas and Bôcher–Grace–Marden theorems are classical results in the geometry of polynomials. Proofs of these results are available in the literature, but the approaches are seemingly different. In this work, we show that these theorems can be proven in a unified theoretical framework utilizing matrix analysis (in particular, using the field of values and the differentiator of a matrix). In addition, we provide a useful variant of a well-known result due to Siebeck.