1145-VQ-1475 **Thomas R Cameron*** (thcameron@davidson.edu). *Householder Sets and their Application to the Polynomial Eigenvalue Problem.* Preliminary report.

In 1964, Alston S. Householder presented an elegant norm derivation of the Gershgorin set of a matrix. Then, in his book titled *Geršgorin and His Circles*, Richard S. Varga reviewed this derivation and dubbed the normed defined sets used as Householder sets.

In this talk, we present a generalization of Householder sets for matrix polynomials. These sets have many wonderful properties, including being inclusion sets for the eigenvalues of a matrix polynomial. With the aid of beautiful pictures, we outline our systematic study of the properties of these sets and their connection to the Geršgorin set of a matrix polynomial. (Received September 22, 2018)