1125-VI-1138 **Göran Bergqvist*** (gober@mai.liu.se), Department of Mathematics, Linköping University, 58183 Linköping, Sweden. *Envelopes that bound the spectrum of a matrix.*

The real part of any eigenvalue of a matrix A is less or equal to the largest eigenvalue of its Hermitian part H(A). Applied to exp(-iv)A for all v, the spectrum of A is also contained in an infinite intersection of v-rotated half-planes, an intersection that equals the numerical range F(A). Adam, Psarrakos and Tsatsomeros showed that using the two largest eigenvalues of H(A), a cubic curve that restricts the location of eigenvalues can be constructed and, using the idea of rotations, the envelope of such cubic curves defines a region inside F(A) that still contains the spectrum. In contrast to F(A), the new region is not necessarily convex or connected. Here we present a generalization of their method and show how new restricting curves for the spectrum can be found if one utilizes more than two eigenvalues of H(A), and how the envelope of such curves bounds a new smaller region for the spectrum. (Received September 15, 2016)