CONSTRUCTION OF RADAU AND LOBATTO RULES FROM ORTHOGONAL LAURENT POLYNOMIALS

C. Jagels
Hanover College
Hanover, IN, USA
`jagels@hanover.edu`

The construction of Gaussian rules can be viewed as a spectral decomposition of the tridiagonal Jacobi matrix generated by the Lanczos process. Radau and Lobatto rules follow from a modification of this matrix. Analogous rules exist for Laurent polynomials, polynomials that contain reciprocal powers. The analog of the tridiagonal recursion matrix is a pentadiagonal matrix. This talk discusses augmentations of the pentadiagonal matrix that yield a Radau and Lobatto rules that integrate exactly one or two more positive powers, negative powers, or a combination therein.