Computation of Rational Szegő-Lobatto Quadrature Formulas *

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Abstract

Szegő quadrature formulas are analogs of Gauss quadrature rules when dealing with the approximate integration of periodic functions, since they exactly integrate trigonometric polynomials of as high degree as possible, or more generally Laurent polynomials which can be viewed as rational functions with poles at the origin and infinity. When more general rational functions with prescribed poles on the extended complex plane not on the unit circle are considered to be exactly integrated, the so called "Rational Szegő Quadrature Formulas" appear. In this talk, and as a continuation of earlier papers ([1], [2]), some computational aspects concerning these quadratures are analyzed when one or two nodes are previously fixed on the unit circle.

References

[1] C. Jagels, L. Reichel, *Szegő-Lobatto quadrature rules*, Journal of Computational and Applied Mathematics 200 (2007), 116–126.

[2] A. Bultheel, P. González-Vera, E. Hendriksen, O. Njåstad *Rational quadrature formulas on the unit circle with prescribed node and maximal domain of validity*. IMA Journal of Numerical Analysis. To appear (2009).

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