

# ERROR BOUNDS OF POSITIVE INTERPOLATORY QUADRATURE RULES FOR FUNCTIONS ANALYTIC ON ELLIPSES

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There are lots of specific error bounds of the Gaussian quadrature rules with simple and multiple nodes for functions analytic in a region of the complex plane that contains the interval of integration. They depend on the kind of a quadrature and the measure relative to which the quadrature is considered. We are aware of only one kind of error bound for the standard Gauss quadrature rule with respect to a general measure, given by von Sydow [1], and its generalization to the Gauss-Turán quadrature rule, given by the author [2]. In this paper we consider that kind of the general error bound for the positive interpolatory quadrature rules, in particular for some of their important subclasses. In many numerical experiments we performed (cf. [3]), the results show that the proposed general error bound is of the same range as the existing specific error bounds.

## References

- [1] B. Von Sydow, *Error estimates for Gaussian quadrature formulae*, Numer. Math., 29 (1997), pp. 59–64.
- [2] M. M. Spalević, *Error bounds and estimates for Gauss-Turán quadrature formulae of analytic functions*, SIAM J. Numer. Anal., 52 (2014), pp. 443–467.
- [3] M. M. Spalević, *Error bounds of positive interpolatory quadrature rules for functions analytic on ellipses*, TWMS J. Pure Appl. Mathematics, (2025), in press.