

Kovačević, M. A.; Milovanović, G. V.

Spline approximation and generalized Turán quadratures. (English) Zbl 0857.41008

Port. Math. 53, No. 3, 355-366 (1996).

Summary: In this paper, which is connected with our previous work [the authors, Numerical mathematics, Proc. Int. Conf., Singapore 1988, ISNM, Int. Ser. Numer. Math. 86, 357-365 (1988; [Zbl 0659.65010](#))], we consider the problem of approximating a function f on the half-line by a spline function of degree m with n (variable) knots (multiplicities of the knots are greater or equal than one). In the approximation procedure we use the moments of the function $r \mapsto f(r)$ and its derivatives at the origin $r = 0$. If the approximation exists, we show that it can be represented in terms of the generalized Turán quadrature relative to a measure depending on f . Also the error in the spline approximation formula is expressed by the error term in the corresponding quadrature formula. A numerical example is included.

MSC:

[41A15](#) Spline approximation
[65D32](#) Numerical quadrature and cubature formulas
[33C65](#) Appell, Horn and Lauricella functions

Cited in **2** Documents

Keywords:

[Turán quadrature](#); [spline approximation](#)