Noskov, M. V.

Cubature weight formulae of highest algebraic accuracy. (English. Russian original)

Zbl 0803.65023

Comput. Math. Math. Phys. 32, No. 12, 1819-1820 (1992); translation from Zh. Vychisl. Mat. Mat. Fiz. 32, No. 12, 1993-1995 (1992).

Using some known results about cubature formulae for trigonometric polynomials the author presents a method for constructing cubature formulae with the weight $w(x_1, \ldots, x_n) = \prod_{i=1}^{n}(1 - x_i^2)^{-1/2}$, which integrate exactly all algebraic polynomials of degree m. In case $m = 2$ and $m = 3$ the resulting cubature formulae are of highest algebraic degree of precision.

Reviewer: B.D.Bojanov (Sofia)

MSC:

65D32 Numerical quadrature and cubature formulas
41A55 Approximate quadratures
41A63 Multidimensional problems (should also be assigned at least one other classification number from Section 41-XX)

Keywords:

cubature formulae; trigonometric polynomials; algebraic polynomials; highest algebraic degree of precision