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EXTREMAL FUNCTIONS OF CUBATURE FORMULAS ON A MULTIDIMENSIONAL SPHERE AND SPHERICAL SPLINES

V. L. Vaskevich

We establish the general form of extremal cubature formulas on multidimensional spheres. The domains of definition for the cubature formulas under consideration are Sobolev-type spaces on the sphere. The smoothness of the class function under study may be fractional. We prove that, for a given set of nodes, there exists a one-to-one correspondence between the set of extremal functions of cubature formulas on the sphere and the set of natural spherical splines with zero spherical mean.

Key words and phrases: cubature formulas, error functionals, Sobolev spaces on a multidimensional sphere, extremal functions, multidimensional spherical splines.

Vaskevich Vladimir Leont'evich
Sobolev Institute of Mathematics,
Novosibirsk, 630090 Russia.
E-mail: vask@math.nsc.ru

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