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Abstracts of Short Communications and Posters

Section:

15. Numerical Analysis and Scientific Computing

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Litvin, Oleg M., Ukrainian Engineering-Pedagogical Academy, Kharkov, UkraineInterlination of Function (the blending function interpolation)

Interlination Function (the Blending Function interpolation) and some its Applications

Interlination of function (the blending function interpolation) is said to be reconstruction of function $f(x) : x \in R^n$ by means of its trace on the lines M, $M \geq 2$. Interlination of function may be rational, polynomial, trigonometrical by means of the R-function, spline-interlination, interlination with preservation (or without preservation) of differentiable function class, linear and nonlinear interlination of function and etc.

The paper contains review, some new results and the following applications:
1. Approximation theory of several variable functions.
2. Reduction methods of the boundary-value problems in partial differential equations to the problems for a system of linear or nonlinear ordinary integro-differential equations.
3. Economical and adaptive schemes of the finite element method.
4. Optimal finite element method with optimal basic functions.
5. 2D and 3D problems of the X-ray computer tomography.
6. Multidimensional digital signal processing.