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Abstracts of Short Communications and Posters

Section:

8. Analysis

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Kolodyazhniy, Volodymyr, Kharkiv Aviation Institute, Ukraine
Nonlinear Identification Problem Solution Using the Wavelets of the Atomic Functions
Analysis of the identification problem of a functional nonlinear causal system, which is described by the Volterra series

$$y(t) = \sum_{i=0}^{\infty} \int_{E^i} h_i(t, \tau_1, ..., \tau_i) \prod_{j=1}^{i} x(\tau_j) dv_\tau,$$

is regarded: analytic definitions of the kernels in the series are realized by the orthogonal moment method, when the orthogonal moments of the kernels can be obtained by the way of expansion by the functions of the wavelet systems built with the atomic functions (WA-system). The orthoghonal WA-systems consist of infinitely differentiable functions with exponentional localization. The spaces of the linear combinations of translations of the functions in the WA-system functions have the optimum characteristics from the point of view of the function approximation theory with asymptotic extremality in a sence of Kolmogorov n-width.