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	authors	<ul style="list-style-type: none">Alexander G. Ramm	authors	<ul style="list-style-type: none">A.G.Ramm	NOT DUPLICATES	1678
	title	Analytical solution of a new class of integral equations	title	Analytical solution of a new class of integral equations		
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	id	id8663255875915080473	id	id-8556466676793383212		
	abstract		abstract	Let (1) $R_h = f, 0 \leq x \leq L, R_h = R L 0 R (x, y) h (y) dy$, where the kernel $R (x, y)$ satisfies the equation $QR = P \hat{I}' (x \hat{\wedge} y)$. Here Q and P are formal differential operators of order n and $m < n$, respectively, n and m are nonnegative even integers, $n > 0, m \neq 0, Qu := q_n (x) u (n) + P n \hat{\wedge} 1 j = 0 q_j (x) u (j), P h := h (m) + P m \hat{\wedge} 1 j = 0 p_j (x) h (j), q_n (x) \neq c > 0$, the coefficients $q_j (x)$ and $p_j (x)$ are smooth functions defined on $R, \hat{I}' (x)$ is the delta-function, $f \hat{\wedge} H \hat{I}_{\pm} (0, L), \hat{I}_{\pm} := n \hat{\wedge} m 2, H \hat{I}_{\pm}$ is the Sobolev space. An algorithm for finding analytically the unique solution $h \hat{\wedge} \hat{E}^{TM} H \hat{\wedge} \hat{I}_{\pm} (0, L)$ to (1) of minimal order of singularity is given. Here $\hat{E}^{TM} H \hat{\wedge} \hat{I}_{\pm} (0, L)$ is the dual space to $H \hat{I}_{\pm} (0, L)$ with respect to the inner product of $L 2 (0, L)$. Under suitable assumptions it is proved that $R : \hat{E}^{TM} H \hat{\wedge} \hat{I}_{\pm} (0, L) \hat{\rightarrow} H \hat{I}_{\pm} (0, L)$ is an isomorphism. is basic equation of random processes estimation theory. Some of the results are to the of multidimensional equation (1), in which case this is the basic equation of random fields estimation theory.		
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