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To the Noether's theory of one first kind system of integral equations in convolutions.

The paper is devoted to the theory of the solvability of one system of integral first kind equations in convolutions as

$$\frac{1}{\sqrt{2\pi}}\int_{0}^{+\infty} k_1(x-t)Q_m(t)\varphi(t)dt + \frac{1}{\sqrt{2\pi}}\int_{-\infty}^{0} k_2(x-t)T_s(t)\varphi(t)dt = h(x), \qquad (1)$$

where $Q_m(x) = \sum\limits_{k=0}^{m} a_k x^k$, $T_s(x) = \sum\limits_{\nu=0}^{s} b_\nu x^\nu$ - are known polynomials; $h(x) \in L_2$ - is a known vector-function with dimension n, $k_1(x), k_2(x) \in L$ - are known matrix-functions with dimension n.

Let $m = s$, then according to the properties of Fourier transformation, the investigation of the system of equations (1) is led to the investigation of the following matrix differential boundary problem as:

$$\sum_{k=0}^{m}(-1)^k\{K_1(x)A_k\Phi^{+(k)}(x) - K_2(x)B_k\Phi^{-(k)}(x)\} = H(x), \qquad (2)$$

where $K_1(x)$, $K_2(x)$, $H(x)$ are accordingly the Fourier transformations of matrix functions $k_1(x), k_2(x)$ and the vector function $h(x)$; $\Phi^+(x)$ $(\Phi^-(x))$ is a boundary value at the real axis of an unknown vector function $\Phi^+(z)$ $(\Phi^-(z))$, which is an analytical one in the domain $Imz > 0$ $(Imz < 0)$.

It is determined that the system of equations (1) and the boundary problem (2) are equivalent and solutions of the system (1) are expressed over solutions of the problem (2) according to the formula

$$\varphi(x) = \frac{1}{\sqrt{2\pi}}\int_{R}\left[\Phi^+(t) - \Phi^-(t)\right]e^{-ixt}dt. \qquad (3)$$

Thus the constructing of the theory of solvability of the system (1) will be based on the theory of solvability of the boundary problem (2). As solutions of the problem (2) will be found in the form of limiting values of the Cauchy type integral, then $\Phi^{\pm(k)}(\infty) = 0$, $k = \overline{0, m-1}$, so the problem (2) has null entry conditions. It is determined that the system (1) is not a normally solvable or it is not a Noetherian one.

The conditions, when the system (1) will be a Noetherian one and a solvable one are determined in this paper. The number of linear independent solutions and the number of conditions of solvability of the heterogeneous system (1) in the normal and singular cases for $m = s$ were determined in this paper. The singular case includes the conditions of solvability for the finite number of zeroes of finite integer and also fractional orders for matrix functions $\det[A(x) + B(x)], \det[A(x) - B(x)]$. The summary index of the system (1) is also counted.