ON SINGULAR SYSTEMS OF INTEGRAL EQUATIONS

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In this report we consider systems of linear integral equations (integral-algebraic equations)

$$A(t)u(t) + \int\limits_a^t K(t,\tau)u(\tau)d\tau = f(t), \quad t \in [a,T], \tag{1}$$

where $A(t), K(t,\tau)$ are $(n \times n)-$matrices, $\det A(t) \equiv 0$ and two-dimensional problems

$$A(t,x)u(t,x) + \int\limits_a^t \int\limits_b^x K(t,x,\tau,s)u(\tau,s)dsd\tau = f(t,x), \quad t \in [a,T], \quad x \in [b,X], \tag{2}$$

where $\det A(t,x) \equiv 0$.

The sufficient existence conditions for the problems (1) and (2) are given and methods of numerical solution are proposed.