ON A BOUNDARY VALUE PROBLEM FOR SECOND ORDER LINEAR FUNCTIONAL DIFFERENTIAL EQUATIONS

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Consider the problem

$$\mathrm{u}''(t) = \ell(u)(t) + q(t) \tag{1}$$

$$\mathrm{u(a)} \;= \mathrm{c}_1,\ u(b) = u(t_0) + c_2, \tag{2}$$

where $\ell : C([a,b];) \longrightarrow L([a,b];)$ is a linear bounded operator, $q \in L([a,b];R)$, $t_0 \in]a,b[$ and $c_1, c_2 \in R$.

In the paper, the nonimprovable, in a certain sense, effective sufficient conditions are established guaranteeing the unique solvability of the problem (1, 2).