

On the Well-Posedness of the Nonlocal Boundary Value Problem for the Differential Equation of Elliptic Type

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Abstract: In the present paper the abstract nonlocal boundary value problem for the second order differential equation

$$-v''(t) + Av(t) = f(t) \quad (0 \leq t \leq T), v(0) = v(T) + \varphi, \int_0^T v(s)ds = \psi$$

in an arbitrary Banach space E with the positive operator A is considered. The well-posedness of this problem in various Banach spaces is established. In applications, the coercive stability estimates in Hölder norms for the solutions of the mixed type nonlocal boundary value problems for elliptic equations are obtained.

Keywords: elliptic equation; positive operators; Well-posedness; coercive stability.

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