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ON THE BASIS IN THE SPACE $L_p(0,1)$, $1 < p < +\infty$ OF THE SYSTEM OF EIGEN FUNCTIONS OF STURM-LIOUVILLE PROBLEM WITH A SPECTRAL PARAMETER IN BOUNDARY CONDITIONS

Abstract

We consider the following spectral problem

$$-y''(x) = \lambda y(x), \quad x \in (0,1),$$

$$(a_0\lambda + b_0) y(0) = (c_0\lambda + d_0) y'(0),$$

$$(a_1\lambda + b_1) y(1) = (c_1\lambda + d_1) y'(1),$$

where λ is a spectral parameter, a_i, b_i, c_i, d_i, $i = \overline{0,1}$ are real constants, moreover

$$\sigma_0 = a_0 d_0 - b_0 c_0 < 0, \quad \sigma_1 = a_1 d_1 - b_1 c_1 > 0.$$

Necessary and sufficient basicity conditions in the space $L_p(0,1)$, $1 < p < \infty$ of the system of eigen functions of this problem with two removed functions are found.