

INVESTIGATION OF FUČÍK SPECTRUM FOR A PROBLEM WITH TWO-POINT NONLOCAL BOUNDARY CONDITION¹

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Let us consider the Fučík equation with nonlocal two-point boundary condition

$$-x'' = \mu x^+ - \lambda x^-, \quad t \in [0, 1], \quad (1)$$

$$x(0) = 0, \quad (2)$$

$$x(1) = \gamma x(\xi) \quad (3)$$

with the parameters $\mu, \lambda, \gamma \in \mathbb{R}$ and $0 \leq \xi \leq 1$. Some cases of Fučík spectrum for second order problems with nonlocal two or three point boundary conditions are investigated in [1; 2; 3] and the spectrum of second order differential equation with nonlocal two-point boundary conditions is analyzed in [2].

We investigate the separate cases of the problem (1) - (3,) when the nonlocal boundary condition parameter $\xi \in [0, 1]$. In this study it is made comparison of the problem spectrums when parameter ξ is rational and irrational number. There are presented analytical expressions and graphs of Fučík spectrum in all investigated cases.

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