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ON SOME PROBLEM WITH NONLOCAL INTEGRAL CONDITION

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We consider the Fučík equation

$$-x'' = \mu x^+ - \lambda x^-, \quad x^\pm = \max\{\pm x, 0\} \tag{1}$$

together with nonlocal boundary conditions

$$x(0) = 0, \;\; x(1) = a \int_0^1 x(s)ds, \;\; a \in \mathbb{R}. \tag{2}$$

We study the structure of the spectrum for various values of a.
By the spectrum we mean the set

$$\{(\mu, \lambda) \in \mathbb{R}^2 : \text{ the problem (1), (2) has a nontrivial solution}\}.$$

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