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*Notes on the Fučík spectrum
and the mixed boundary value problem*

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Abstract: The paper is devoted to the study of the properties of the Fučík spectrum. In the first part, we analyse the Fučík spectra of the problems with one second order ordinary differential equation with Dirichlet, Neumann and mixed boundary conditions and we present the explicit form of nontrivial solutions. Then, we discuss the problem with two second order differential equations with mixed boundary conditions. We show the relation between the Dirichlet boundary value problem and mixed boundary value problem; using results of E. Massa and B. Ruf, we derive some properties of the Fučík spectrum of the mixed boundary value problem. Finally, we introduce a new proof of the closedness of the Fučík spectrum and a lemma about convergence of the corresponding nontrivial solutions.

Keywords: Fučík spectrum, system of ordinary differential equations of the second order, Dirichlet, Neumann and mixed boundary conditions

AMS Subject Classification: 34A34, 34B15, 47J10

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