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ON CONSTRUCTIONS OF SEQUENCES TO SOLUTIONS OF BVP

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Abstract. On approximation of solutions to the Dirichlet boundary value problems by non-monotone sequences of solutions

We consider the Dirichlet problem $x'' = f(t, x, x')$, $x(a) = A$, $x(b) = B$ under the assumption that there exist the upper and lower functions. We distinguish between two types of solutions, the first one, which can be approximated by monotone sequences of solutions (the so called Jackson - Schrader's solutions) and those solutions of the problem, which cannot be approximated by monotone sequences. We discuss the conditions under which it is possible to approximate the second type solutions of the Dirichlet problem.

REFERENCES

[1] C.De Coster, P. Habets *Two-point boundary value problems: lower and upper solutions.* Elsevier, 2006.-489 pp.

[2] W. Kelly, A. Peterson *The Theory of Differential Equations: Classical and Qualitative.* Pearson Education, New Jersy, 2004.-413 pp.

[3] M. Cherpion, C. De Coster, P. Habets. *Monotone iterative methods for boundary value problems.* January 24, 1997

[4] L.K.Jackson, K.W.Schrader. *Comparison Theorems for Nonlinear Differential Eguations.* Journal of Differential Equations 3,248-255 (1967)

[5] I. Yermachenko,F. Sadyrbaev. *Quasilinearization and Multiple Solutions of the Emden-Fowler Type Equation.* Mathematical Modelling and Analysis, 10(1), 2005, p. 41-50.