

Asymptotic integration of nonlinear Φ -Laplacian differential equations

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The main goal of this talk is to present some results on asymptotic properties of the equation

$$(\phi(u^{(n)}))' = g(t, u), \quad t \geq t_0 \geq 1, \quad (1)$$

where $n \geq 1$, $\phi : R \rightarrow R$ is an increasing homeomorphism with $\phi(0) = 0$. Sufficient conditions for the existence of solutions of the equation (1) which are asymptotic at ∞ to a polynomial of degree $m \leq n - 1$ will be presented (see [2]). For the case $\phi(u) \equiv u$, $n \geq 1$ this problem has been solved in the paper [4]. There are many papers concerning this problem for the case of second order ordinary and also delay differential equations. Some of them can be found in the paper [1] and in the references of the paper [4]. Conditions under which any solution of a second order p -Laplacian equation is asymptotic at ∞ to a linear function are given in the paper [3].

Acknowledgement

The research was supported by the Slovak Research and Development Agency under the contract No. APVV-0414-07.

References

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