

Samovol, V. S.

On nonoscillating solutions of Emden-Fowler-type equations. (English. Russian original)

Zbl 1320.34078

Math. Notes 95, No. 6, 843-855 (2014); translation from Mat. Zametki 95, No. 6, 911-925 (2014).

Summary: Asymptotic properties of nonoscillating solutions of Emden-Fowler-type equations of arbitrary order are considered. The paper contains results on asymptotic properties of solutions with integer-valued asymptotics as well as of solutions arising from the rapid decrease of the coefficient of the equation. To analyze the asymptotic behavior of solutions of the equations, methods of power geometry are used.

MSC:

- 34D05 Asymptotic properties of solutions to ordinary differential equations
- 34C10 Oscillation theory, zeros, disconjugacy and comparison theory for ordinary differential equations
- 34A25 Analytical theory of ordinary differential equations: series, transformations, transforms, operational calculus, etc.
- 34A34 Nonlinear ordinary differential equations and systems

Cited in 2 Documents

Keywords:

Emden-Fowler-type equation; power geometry; nonoscillating solution; noncontinuabile solution; Newton polyhedron

Full Text: [DOI](#)

References:

- [1] Samovol, V S, On solutions of Emden-Fowler-type equations, Mat. Zametki, 95, 775-789, (2014) · Zbl 1320.34077 · doi:10.4213/mzm10445
- [2] R. Bellman, \textit{Stability Theory of Differential Equations} (McGraw-Hill, New York-Toronto-London, 1953; Inostr. Lit., Moscow, 1954). · Zbl 0053.24705
- [3] Kondrat'ev, V A; Samovol, V S, On asymptotic properties of solutions of Emden-Fowler-type equations, Differ.Uravn., 17, 749-750, (1981)
- [4] Sobol', I M, On the asymptotic behavior of the solutions of linear differential equations, Dokl. Akad. Nauk SSSR, 61, 219-222, (1948) · Zbl 0038.25301
- [5] Kiguradze, I T, On the oscillatory character of solutions of the equation $\frac{d^m u}{dt^m} + a(t)|u|^n \operatorname{sign} u = 0$, Mat. Sb., 65, 172-187, (1964) · Zbl 0135.14302
- [6] I. T. Kiguradze and T. F. Chanturiya, \textit{Asymptotic Properties of Solutions of Nonautonomous Ordinary Differential Equations} (Nauka, Moscow, 1990) [in Russian]. · Zbl 0719.34003
- [7] Izobov, N A, Continuabile and noncontinuabile solutions of a nonlinear differential equation of arbitrary order, Mat. Zametki, 35, 829-839, (1984)
- [8] I. V. Astashova, \textit{Qualitative Properties of Solutions of Differential Equations and Related Questions of Spectral Analysis} (YUNITI-DANA, Moscow, 2012) [in Russian].
- [9] A. D. Bryuno, \textit{Power Geometry in Algebraic and Differential Equations} (Nauka, Moscow, 1998) [in Russian]. · Zbl 0903.34001
- [10] Bryuno, AD, Asymptotic behavior and expansions of solutions of an ordinary differential equation, Uspekhi Mat. Nauk, 59, 31-80, (2004) · doi:10.4213/rm736

This reference list is based on information provided by the publisher or from digital mathematics libraries. Its items are heuristically matched to zbMATH identifiers and may contain data conversion errors. It attempts to reflect the references listed in the original paper as accurately as possible without claiming the completeness or perfect precision of the matching.