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Power geometry of a non-linear differential equation. (English) [Zbl 1418.34026](#)

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Summary: In this article the solutions of Emden-Fowler-type equations of any order are studied using methods of power geometry. It is shown that these methods can be successfully applied in the study of asymptotic behaviour of the solutions. Also, we find conditions for the existence (nonexistence) of solutions of new types having nonpower (power-logarithmic) asymptotics. Some numerical characteristics of such solutions are given.

MSC:

34A25 Analytical theory of ordinary differential equations: series, transformations, transforms, operational calculus, etc.

34A34 Nonlinear ordinary differential equations and systems

34D05 Asymptotic properties of solutions to ordinary differential equations

Keywords:

power geometry; Emden-Fowler-type equation; continuable solution; non-oscillating solution; asymptotics; truncated equation

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