Interval oscillation criteria for forced Emden-Fowler functional dynamic equations with oscillatory potential

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Abstract
Interval oscillation criteria are established for a second-order functional dynamic equation of Emden-Fowler type with oscillatory potential by applying Riccati and generalized Riccati techniques. The results represent further improvements on those given even for differential and difference equations. Some examples are considered to illustrate the main results.

KeyWords: oscillation; forced dynamic equations; time scales; functional equations; Riccati technique
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Some Opial Dynamic Inequalities Involving Higher Order Derivatives on Time Scales

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Abstract
We will prove some new Opial dynamic inequalities involving higher order derivatives on time scales. The results will be proved by making use of Holder's inequality, a simple consequence of Keller's chain rule and Taylor monomials on time scales. Some continuous and discrete inequalities will be derived from our results as special cases.

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Some New Inequalities of Opial's Type on Time Scales

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Abstract
We will prove some new dynamic inequalities of Opial's type on time scales. The results not only extend some results in the literature but also improve some of them. Some continuous and discrete inequalities are derived from the main results as special cases. The results can be applied on the study of distribution of generalized zeros of half-linear dynamic equations on time scales.

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Lyapunov's Type Inequalities for Fourth-Order Differential Equations

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Abstract

For a fourth-order differential equation, we will establish some new Lyapunov-type inequalities, which give lower bounds of the distance between zeros of a nontrivial solution and also lower bounds of the distance between zeros of a solution and/or its derivatives. The main results will be proved by making use of Hardy's inequality and some generalizations of Opial-Wirtinger-type inequalities involving higher-order derivatives. Some examples are considered to illustrate the main results.

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New Inequalities of Opial's Type on Time Scales and Some of Their Applications

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Abstract
We will prove some new dynamic inequalities of Opial's type on time scales. The results not only extend some results in the literature but also improve some of them. Some continuous and discrete inequalities are derived from the main results as special cases. The results will be applied on second-order half-linear dynamic equations on time scales to prove several results related to the spacing between consecutive zeros of solutions and the spacing between zeros of a solution and/or its derivative. The results also yield conditions for disfocality of these equations.

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