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SOME NONLINEAR DYNAMIC INEQUALITIES ON TIME SCALES AND APPLICATIONS

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Abstract. Some nonlinear dynamic inequalities on a time scale $\mathbb{T}$ are formulated in this paper. Some sufficient conditions for global existence and an estimate of the rate of decay of solutions are obtained. The results not only unify the results of differential and difference inequalities but can be applied on different types of time scales. These inequalities are of interest in a study of continuous and discrete dynamical systems and nonlinear evolution equations as well as in oscillation theory of dynamic equations on time scales and can be applied to the study of global existence of nonlinear PDE. Some applications illustrating the main results are given.

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