

# DYNAMIC PICONE'S IDENTITY AND ITS APPLICATIONS

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ABSTRACT. We prove some Picone-type identities and inequalities for a class of first-order nonlinear dynamic systems and derive various weighted inequalities of Wirtinger type and Hardy type on time scales. As applications we study oscillatory and related properties of these systems including Reid's roundabout theorem on disconjugacy, Sturm's separation and comparison theorems, as well as a variational method in the oscillation theory.

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