



# Dynamic Inequalities, Bounds, and Stability of Systems with Linear and Nonlinear Perturbations

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Received: June 11, 2008; Revised: June 6, 2009

**Abstract:** Generalized dynamic inequalities are introduced to the time scales scene, mainly as generalizations of Gronwall's inequality. Linear systems with linear and nonlinear perturbations and their stability characteristics versus the unperturbed system are investigated. Bounds for solutions to linear dynamic systems are stated using the system matrix.

**Keywords:** *stability; perturbed linear system; dynamic inequality; system bounds; time scales.*

**Mathematics Subject Classification (2000):** 34A30, 34D20, 39A11.