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Qualitative Theory of Divided Difference First Order Systems

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(Nature often makes nonuniform jumps)

Abstract

In this paper we shall develop several comparison results for a very general class of difference systems. From these results almost all known Gronwall type inequalities in one independent variable can be deduced as simple exercises. We shall show that our results can be employed directly to study various qualitative properties of solutions such as boundedness and continuous dependence on the initial data. We shall further investigate the asymptotic behavior, and the stability over the manifolds of solutions of such systems.

AMS Subject Classification: 39A11

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