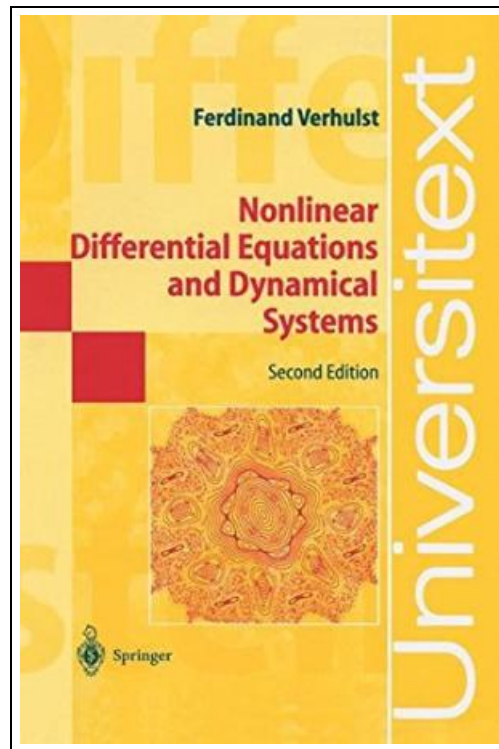


Nonlinear Differential Equations and Dynamical Systems



Filesize: 1020.93 KB

Reviews

A very awesome ebook with perfect and lucid information. It is really simplified but unexpected situations in the 50 % of your pdf. I am pleased to let you know that here is the greatest book i have study inside my very own lifestyle and can be he greatest ebook for at any time.

(Noah Bruen)

NONLINEAR DIFFERENTIAL EQUATIONS AND DYNAMICAL SYSTEMS

[DOWNLOAD](#)

Book Condition: New. Publisher/Verlag: Springer, Berlin | This book bridges the gap between elementary courses and the research literature. The basic concepts necessary to study differential equations - critical points and equilibrium, periodic solutions, invariant sets and invariant manifolds - are discussed. Stability theory is developed starting with linearisation methods going back to Lyapunov and Poincaré. The global direct method is then discussed. To obtain more quantitative information the Poincaré-Lindstedt method is introduced to approximate periodic solutions while at the same time proving existence by the implicit function theorem. The method of averaging is introduced as a general approximation-normalisation method. The last four chapters introduce the relaxation oscillations, bifurcation theory, centre manifolds, chaos in mappings and differential equations, Hamiltonian systems (recurrence, invariant tori, periodic solutions). | 1 Introduction.- 1.1 Definitions and notation.- 1.2 Existence and uniqueness.- 1.3 Gronwall's inequality.- 2 Autonomous equations.- 2.1 Phase-space, orbits.- 2.2 Critical points and linearisation.- 2.3 Periodic solutions.- 2.4 First integrals and integral manifolds.- 2.5 Evolution of a volume element, Liouville's theorem.- 2.6 Exercises.- 3 Critical points.- 3.1 Two-dimensional linear systems.- 3.2 Remarks on three-dimensional linear systems.- 3.3 Critical points of nonlinear equations.- 3.4 Exercises.- 4 Periodic solutions.- 4.1 Bendixson's criterion.- 4.2 Geometric auxiliaries, preparation for the Poincaré-Bendixson theorem.- 4.3 The Poincaré-Bendixson theorem.- 4.4 Applications of the Poincaré-Bendixson theorem.- 4.5 Periodic solutions in \mathbb{R}^n .- 4.6 Exercises.- 5 Introduction to the theory of stability.- 5.1 Simple examples.- 5.2 Stability of equilibrium solutions.- 5.3 Stability of periodic solutions.- 5.4 Linearisation.- 5.5 Exercises.- 6 Linear Equations.- 6.1 Equations with constant coefficients.- 6.2 Equations with coefficients which have a limit.- 6.3 Equations with periodic coefficients.- 6.4 Exercises.- 7 Stability by linearisation.- 7.1 Asymptotic stability of the trivial solution.- 7.2 Instability of the trivial solution.- 7.3 Stability of periodic solutions of autonomous equations.- 7.4 Exercises.- 8 Stability analysis by the direct...

[Read Nonlinear Differential Equations and Dynamical Systems Online](#)[Download PDF Nonlinear Differential Equations and Dynamical Systems](#)

See Also



McGraw-Hill Reading Phonics And Phonemic Awareness Practice Book, Grade 3 (2001 Copyright)

McGraw-Hill, 2001. Soft cover. Book Condition: Brand New. Dust Jacket Condition: No Dust Jacket. Brand New 2001 Copyright, Grade 3 Student Phonics And Phonemic Awareness Practice Book With Units 1-6, Unit Reviews, Take-Home Stories, Illustrations...

[Read eBook](#)

»



Would It Kill You to Stop Doing That?

Book Condition: New. Publisher/Verlag: Little, Brown Book Group | A Modern Guide to Manners | A laugh-out-loud guide to modern manners by acclaimed humorist, author, and Vanity Fair columnist Henry Alford. | A few years...

[Read eBook](#)

»



Violet Rose and the Surprise Party

Book Condition: New. Publisher/Verlag: Nosy Crow | With activities, 3D press-out models and over 175 stickers! Plus free games and printables online! | When busy rabbit, Violet Rose, discovers that her friend Lily has a...

[Read eBook](#)

»



TJ new concept of the Preschool Quality Education Engineering: new happy learning young children (3-5 years old) daily learning book Intermediate (2)(Chinese Edition)

paperback. Book Condition: New. Ship out in 2 business day, And Fast shipping, Free Tracking number will be provided after the shipment.Paperback. Pub Date :2005-09-01 Publisher: Chinese children before making Reading: All books are the...

[Read eBook](#)

»



TJ new concept of the Preschool Quality Education Engineering the daily learning book of: new happy learning young children (2-4 years old) in small classes (3)(Chinese Edition)

paperback. Book Condition: New. Ship out in 2 business day, And Fast shipping, Free Tracking number will be provided after the shipment.Paperback. Pub Date :2005-09-01 Publisher: Chinese children before making Reading: All books are the...

[Read eBook](#)

»