Dynamical Systems: Stability, Symbolic Dynamics And Chaos Studies In Advanced Mathematics

Horseshoe / Fractals / Rapid Fluctuations of Chaotic Maps on RN / Infinite-dimensional Systems Induced by Continuous-Time Difference Equations

Iterations / Total Variations of Iterates of Maps / Ordering among Periods: The Sharkovski Theorem / Bifurcation Theorems for Maps / Homoclinicity. Lyapunoff Exponents / Symbolic Dynamics, Conjugacy and Shift Invariant Sets / The Smale

Chapter seven looks at the dynamics of symbolic systems arising from numeration systems, and chapter eight gives a complete description of the symbolic dynamics of Lorenz maps.

The exposition is mathematically rigorous, concise and direct: all statements (except for some results from other areas) are proven. At the same time, the text illustrates the theory with many examples and 140 exercises of variable levels of difficulty.

The book provides a broad introduction to the current status of research in dynamical systems, and will be of interest to mathematicians and scientists working in applied areas. It may also be used for a more advanced course in dynamical systems.