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Sommario/riassunto	Mathematical chaos in neural networks is a powerful tool that reflects the world’s complexity and has the potential to uncover the mysteries of the brain’s intellectual activity. Through this monograph, the authors aim to contribute to modern chaos research, combining it with the fundamentals of classical dynamical systems and differential equations. The readers should be reassured that an in-depth understanding of chaos theory is not a prerequisite for working in the area designed by the authors. Those interested in the discussion can have a basic

understanding of ordinary differential equations and the existence of bounded solutions of quasi-linear systems on the real axis. Based on the novelties, this monograph aims to provide one of the most powerful approaches to studying complexities in neural networks through mathematical methods in differential equations and, consequently, to create circumstances for a deep comprehension of brain activity and artificial intelligence. A large part of the book consists of newly obtained contributions to the theory of recurrent functions, Poisson stable, and alpha unpredictable solutions and ultra Poincaré chaos of quasi-linear and strongly nonlinear neural networks such as Hopfield neural networks, shunting inhibitory cellular neural networks, inertial neural networks, and Cohen-Grossberg neural networks. The methods and results presented in this book are meant to benefit senior researchers, engineers, and specialists working in artificial neural networks, machine and deep learning, computer science, quantum computers, and applied and pure mathematics. This broad applicability underscores the value and relevance of this research area to a large academic community and the potential impact it can have on various fields. .