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   Sommario/riassunto   This volume deals with novel high-quality research results of a wide
                        class of mathematical models with applications in engineering, nature,
                        and social sciences. Analytical and numeric, deterministic and uncertain
                        dimensions are treated. Complex and multidisciplinary models are
                        treated, including novel techniques of obtaining observation data and
                        pattern recognition. Among the examples of treated problems, we
                        encounter problems in engineering, social sciences, physics, biology,
                        and health sciences. The novelty arises with respect to the
                        mathematical treatment of the problem. Mathematical models are built,
                        some of them under a deterministic approach, and other ones taking
                        into account the uncertainty of the data, deriving random models.
                        Several resulting mathematical representations of the models are
                        shown as equations and systems of equations of different types:
                        difference equations, ordinary differential equations, partial differential
                        equations, integral equations, and algebraic equations. Across the
                        chapters of the book, a wide class of approaches can be found to solve
                        the displayed mathematical models, from analytical to numeric
                        techniques, such as finite difference schemes, finite volume methods,
                        iteration schemes, and numerical integration methods.