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   Nota di contenuto   Preface -- Introduction -- 1.History of Mittag-Leffler functions -- 2. Classical Mittag-Leffler function -- 3.Mittag-Leffler functions with two or three parameters -- 4.Generalized Mittag-Leffler functions -- 5. Mittag-Leffler functions and solution to fractional order equations -- 6. Applications to deterministic models -- 7.Applications to stochastic models -- Appendices -- A. Euler Gamma and Beta-functions -- B. Entire functions -- C. Integral transforms -- D. Mellin-Barnes integral -- E. Elements of fractional calculus -- F. Higher transcendental functions -- References.

   Sommario/riassunto As a result of researchers' and scientists' increasing interest in pure as well as applied mathematics in non-conventional models, particularly those using fractional calculus, Mittag-Leffler functions have recently

caught the interest of the scientific community. Focusing on the theory of the Mittag-Leffler functions, the present volume offers a self-contained, comprehensive treatment, ranging from rather elementary matters to the latest research results. In addition to the theory the authors devote some sections of the work to the applications, treating various situations and processes in viscoelasticity, physics, hydrodynamics, diffusion and wave phenomena, as well as stochastics. In particular the Mittag-Leffler functions allow us to describe phenomena in processes that progress or decay too slowly to be represented by classical functions like the exponential function and its successors. The book is intended for a broad audience, comprising graduate students, university instructors and scientists in the field of pure and applied mathematics, as well as researchers in applied sciences like mathematical physics, theoretical chemistry, bio-mathematics, theory of control, and several other related areas.