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ISBN	3-031-25949-1
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Descrizione fisica	1 online resource (411 pages)
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Altri autori (Persone)	GrehanGerard
Disciplina	535.43
Soggetti	Topological groups Lie groups Fluid mechanics Electrodynamics Telecommunication Topological Groups and Lie Groups Engineering Fluid Dynamics Classical Electrodynamics Microwaves, RF Engineering and Optical Communications Electrodinàmica Mecànica de fluids Equacions de Maxwell Llibres electrònics
Lingua di pubblicazione	Inglese
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Nota di contenuto	Background in Maxwell’s Electromagnetism and Maxwell’s Equations -- Resolution of Special Maxwell‘s Equations -- Generalized Lorenz-Mie Theories in the Strict Sense, and other GLMTs -- Gaussian Beams, and Other Beams -- Finite Series -- Special Cases of Axisymmetric and Gaussian Beams -- The Localized Approximation and Localized Beam Models -- Applications, and Miscellaneous Issues -- Conclusion.
Sommario/riassunto	This book explores generalized Lorenz–Mie theories when the illuminating beam is an electromagnetic arbitrary shaped beam relying on the method of separation of variables. Although it particularly

focuses on the homogeneous sphere, the book also considers other regular particles. It discusses in detail the methods available for evaluating beam shape coefficients describing the illuminating beam. In addition it features applications used in many fields such as optical particle sizing and, more generally, optical particle characterization, morphology-dependent resonances and the mechanical effects of light for optical trapping, optical tweezers and optical stretchers. Furthermore, it provides various computer programs relevant to the content. In the last years many new developments took place so that a new edition became necessary. This new book now incorporates solutions for many more particle shapes and morphologies, various kinds of illuminating beams, and also to mechanical effects of light, whispering-gallery modes and resonances, and optical particle characterization techniques. In addition, the new book considers localized approximations, on the renewal of the finite series technique, on a new categorization of optical forces, and the study of Bessel beams, Mathieu beams, Laguerre-Gauss beams, frozen waves.