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	Titolo	The Mathematical Theory of Time-Harmonic Maxwell's Equations : Expansion-, Integral-, and Variational Methods / / by Andreas Kirsch, Frank Hettlich
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	Descrizione fisica	1 online resource (XIII, 337 p. 3 illus., 1 illus. in color.)
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	Disciplina	530.141
	Soggetti	Differential equations, Partial
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		Applied mathematics
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		Partial Differential Equations
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	Nota di contenuto	Introduction -- Expansion into Wave Functions -- Scattering From a Perfect Conductor -- The Variational Approach to the Cavity Problem -- Boundary Integral Equation Methods for Lipschitz Domains -- Appendix -- References -- Index.
	Sommario/riassunto	This book gives a concise introduction to the basic techniques needed for the theoretical analysis of the Maxwell Equations, and filters in an elegant way the essential parts, e.g., concerning the various function spaces needed to rigorously investigate the boundary integral equations and variational equations. The book arose from lectures taught by the authors over many years and can be helpful in designing graduate courses for mathematically orientated students on electromagnetic wave propagation problems. The students should have some knowledge on vector analysis (curves, surfaces, divergence

theorem) and functional analysis (normed spaces, Hilbert spaces, linear and bounded operators, dual space). Written in an accessible manner, topics are first approached with simpler scale Helmholtz Equations before turning to Maxwell Equations. There are examples and exercises throughout the book. It will be useful for graduate students and researchers in applied mathematics and engineers working in the theoretical approach to electromagnetic wave propagation.