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Sommario/riassunto

Describes applications of time-domain EM reciprocity and the Cagniard-deHoop technique to achieve solutions to fundamental antenna radiation and scattering problems This book offers an account of applications of the time-domain electromagnetic "TD EM" reciprocity theorem for solving selected problems of antenna theory. It focuses on the development of both TD numerical schemes and analytical methodologies suitable for analyzing TD EM wave fields associated with fundamental antenna topologies. Time-Domain Electromagnetic Reciprocity in Antenna Modeling begins by applying the reciprocity theorem to formulate a fundamentally new TD integral equation technique—the Cagniard-deHoop method of moments "CdH-MoM"—regarding the pulsed EM scattering and radiation from a thin-wire antenna. Subsequent chapters explore the use of TD EM reciprocity to evaluate the impact of a scatterer and a lumped load on the performance of wire antennas and propose a straightforward methodology for incorporating ohmic loss in the introduced solution methodology. Other topics covered in the book include the pulsed EM field coupling to transmission lines, formulation of the CdH-MoM concerning planar antennas, and more. In addition, the book is supplemented with simple MATLAB code implementations, so that readers can test EM reciprocity by conducting "numerical" experiments. In addition, this text: . Applies the thin-sheet boundary conditions to incorporate dielectric, conductive and plasmonic properties of planar antennas. Provides illustrative numerical examples that validate the described methodologies. Presents analyzed problems at a fundamental level so that readers can fully grasp the underlying principles of solution methodologies. Includes appendices to supplement material in the book Time-Domain Electromagnetic Reciprocity in Antenna Modeling is an excellent book for researchers and professors in EM modeling and for applied researchers in the

industry.