1. Record Nr. UNINA9910876550603321 Autore Poljak D (Dragan) Titolo Advanced modeling in computational electromagnetic compatibility / / Dragan Poljak Pubbl/distr/stampa Hoboken, N.J., : Wiley-Interscience, c2007 **ISBN** 1-280-82227-9 9786610822270 0-470-11688-9 0-470-11687-0 Descrizione fisica 1 online resource (516 p.) Disciplina 621.382/24 Soggetti Electromagnetic compatibility - Mathematical models Electromagnetic compatibility - Data processing Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Nota di bibliografia Includes bibliographical references and index. Nota di contenuto ADVANCED MODELING IN COMPUTATIONAL ELECTROMAGNETIC COMPATIBILITY; CONTENTS; PREFACE; PART I: FUNDAMENTAL CONCEPTS IN COMPUTATIONAL ELECTROMAGNETIC COMPATIBILITY: 1. Introduction to Computational Electromagnetics and Electromagnetic Compatibility: 1.1 Historical Note on Modeling in Electromagnetics: 1.2 Electromagnetic Compatibility and Electromagnetic Interference; 1.2.1 EMC Computational Models and Solution Methods: 1.2.2 Classification of EMC Models; 1.2.3 Summary Remarks on EMC Modeling; 1.3 References: 2. Fundamentals of Electromagnetic Theory: 2.1 Differential Form of Maxwell Equations 2.2 Integral Form of Maxwell Equations 2.3 Maxwell Equations for Moving Media; 2.4 The Continuity Equation; 2.5 Ohm's Law; 2.6 Conservation Law in the Electromagnetic Field; 2.7 The Electromagnetic Wave Equations; 2.8 Boundary Relationships for Discontinuities in Material Properties; 2.9 The Electromagnetic Potentials; 2.10 Boundary Relationships for Potential Functions: 2.11 Potential Wave Equations: 2.11.1 Coulomb Gauge; 2.11.2 Diffusion Gauge; 2.11.3 Lorentz Gauge;

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## Sommario/riassunto

This text combines the fundamentals of electromagnetics with numerical modeling to tackle a broad range of current electromagnetic compatibility (EMC) problems, including problems with lightning, transmission lines, and grounding systems. It sets forth a solid foundation in the basics before advancing to specialized topics, and allows readers to develop their own EMC computational models for applications in both research and industry.