

1. Record Nr.	UNINA9910830238403321
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Titolo	Foundations of pulsed power technology / / Janet Lehr and Pralhad Ron
Pubbl/distr/stampa	Hoboken, New Jersey : , : Wiley : , : IEEE Press, , [2017] [Piscataqay, New Jersey] : , : IEEE Xplore, , [2017]
ISBN	1-119-30116-5 1-119-30117-3 1-118-88650-X
Descrizione fisica	1 PDF (664 pages)
Disciplina	621.3815/34
Soggetti	Pulsed power systems
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Foundations of Pulsed Power Technology; Contents; Preface; About the Authors; Acknowledgments; Introduction; Sources of Information; References; 1: Marx Generators and Marx-Like Circuits; 1.1 Operational Principles of Simple Marxes; 1.1.1 Marx Charge Cycle; 1.1.2 Marx Erection; 1.1.2.1 Switch Preionization by Ultraviolet Radiation; 1.1.2.2 Switch Overvoltages in an Ideal Marx; 1.1.3 Marx Discharge Cycle; 1.1.3.1 No Fire; 1.1.3.2 Equivalent Circuit Parameters During Discharge; 1.1.4 Load Effects on the Marx Discharge; 1.1.4.1 Capacitive Loads; 1.1.4.2 A Marx Charging a Resistive Load 1.2 Impulse Generators1.2.1 Exact Solutions; 1.2.2 Approximate Solutions; 1.2.3 Distributed Front Resistors; 1.3 Effects of Stray Capacitance on Marx Operation; 1.3.1 Voltage Division by Stray Capacitance; 1.3.2 Exploiting Stray Capacitance: The Wave Erection Marx; 1.3.3 The Effects of Interstage Coupling Capacitance; 1.4 Enhanced Triggering Techniques; 1.4.1 Capacitive Back-Coupling; 1.4.2 Resistive Back-Coupling; 1.4.3 Capacitive and Resistively Coupled Marx; 1.4.4 The Maxwell Marx; 1.5 Examples of Complex Marx Generators; 1.5.1 Hermes I and II; 1.5.2 PBFA and Z; 1.5.3 Aurora [9] 1.6 Marx Generator Variations1.6.1 Marx/PFN with Resistive Load; 1.6.2 Helical Line Marx Generator; 1.7 Other Design Considerations; 1.7.1 Charging Voltage and Number of Stages; 1.7.2 Insulation System;

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Sommario/riassunto

Examines the foundation of pulsed power technology in detail to optimize the technology in modern engineering settings Pulsed power technologies could be an answer to many cutting-edge applications. The challenge is in how to develop this high-power/high-energy technology to fit current market demands of low-energy consuming applications. This book provides a comprehensive look at pulsed power technology and shows how it can be improved upon for the world of today and tomorrow. Foundations of Pulsed Power Technology focuses on the design and construction of the building blocks as well as their optimum assembly for synergetic high performance of the overall pulsed power system. Filled with numerous design examples throughout, the book offers chapter coverage on various subjects such as: Marx generators and Marx-like circuits; pulse transformers; pulse-forming lines; closing switches; opening switches; multi-gigawatt to multi-terawatt systems; energy storage in capacitor banks; electrical breakdown in gases; electrical breakdown in solids, liquids and vacuum; pulsed voltage and current measurements; electromagnetic interference and noise suppression; and EM topology for interference control. In addition, the book: . Acts as a reference for practicing engineers as well as a teaching text. Features relevant design equations derived from the fundamental concepts in a single reference. Contains lucid presentations of the mechanisms of electrical breakdown in gaseous, liquid, solid and vacuum dielectrics. Provides extensive illustrations and references Foundations of Pulsed Power Technology will be an invaluable companion for professionals working in the fields of relativistic electron beams, intense bursts of light and heavy ions, flash X-ray systems, pulsed high magnetic fields, ultra-wide band electromagnetics, nuclear electromagnetic pulse simulation, high density fusion plasma, and high energy- rate metal forming techniques.
