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Juan A. Martinez-Velasco -- 3.1 Introduction	39
-- 3.2 Frequency Domain Basics	40
-- 3.2.1 Phasors and FD Representation of Signals	40
-- 3.2.2 Fourier Series	43
-- 3.2.3 Fourier Transform	46
-- 3.3 Discrete-Time Frequency Analysis	48
-- 3.3.1 Aliasing Effect	50
-- 3.3.2 Sampling Theorem	51
-- 3.3.3 Conservation of Information and the DFT	53
-- 3.3.4 Fast Fourier Transform	54
-- 3.4 Frequency-Domain Transient Analysis	56
-- 3.4.1 Fourier Transforms and Transients	56
-- 3.4.2 Fourier and Laplace Transforms	62
-- 3.4.3 The Numerical Laplace Transform	63
-- 3.4.4 Application Examples with the NLT	65
-- 3.4.5 Brief History of NLT Development	65
-- 3.5 Multirate Transient Analysis	66
-- 3.6 Conclusions	69
Acknowledgement	70
References	70
4 Real-Time Simulation Technologies in Engineering	72
/Christian Dufour and Jean B'elanger -- 4.1 Introduction	72
-- 4.2 Model-Based Design and Real-Time Simulation	73
-- 4.3 General Considerations about Real-Time Simulation	74
-- 4.3.1 The Constraint of Real-Time	74
-- 4.3.2 Stiffness Issues	75
-- 4.3.3 Simulator Bandwidth Considerations	75
-- 4.3.4 Simulation Bandwidth vs. Applications	75
-- 4.3.5 Achieving Very Low Latency for HIL Application	76
-- 4.3.6 Effective Parallel Processing for Fast EMT Simulation	77
-- 4.3.7 FPGA-Based Multirate Simulators	79
-- 4.3.8 Advanced Parallel Solvers without Artificial Delays or Stublines: Application to Active Distribution Networks	79
-- 4.3.9 The Need for Iterations in Real-Time	80
-- 4.4 Phasor-Mode Real-Time Simulation	82
-- 4.5 Modern Real-Time Simulator Requirements	82
-- 4.5.1 Simulator I/O Requirements	83
-- 4.6 Rapid Control Prototyping and Hardware-in-the-Loop Testing	85
-- 4.7 Power Grid Real-Time Simulation Applications	85
-- 4.7.1 Statistical Protection System Study	85
-- 4.7.2 Monte Carlo Tests for Power Grid Switching Surge System Studies	87
-- 4.7.3 Modular Multilevel Converter in HVDC Applications	88
-- 4.7.4 High-End Super-Large Power Grid Simulations	89
-- 4.8 Motor Drive and FPGA-Based Real-Time Simulation Applications	90
-- 4.8.1 Industrial Motor Drive Design and Testing Using CPU Models	90
-- 4.8.2 FPGA Modelling of SRM and PMSM Motor Drives	91
-- 4.9 Educational System: RPC-Based Study of DFIM Wind Turbine	94
-- 4.10 Mechatronic Real-Time Simulation Applications	95
-- 4.10.1 Aircraft Flight Training Simulator	95
-- 4.10.2 Aircraft Flight Parameter Identification	95
-- 4.10.3 International Space Station Robotic Arm Testing	95
-- 4.11 Conclusion	97
References	97
5 Calculation of Power System Overvoltages	100
/Juan A. Martinez-Velasco and Francisco Gonz'alez-Molina -- 5.1 Introduction	100
-- 5.2 Power System Overvoltages	101
-- 5.2.1 Temporary Overvoltages	101
-- 5.2.2 Slow-Front Overvoltages	102
-- 5.2.3 Fast-Front Overvoltages	102
-- 5.2.4 Very-Fast-Front Overvoltages	103
-- 5.3 Temporary Overvoltages	103
-- 5.3.1 Introduction	103
-- 5.3.2 Modelling Guidelines for Temporary Overvoltages	103
-- 5.3.3 Faults to Grounds	104
-- 5.3.4 Load Rejection	110
-- 5.3.5 Harmonic Resonance	115
-- 5.3.6 Energization of Unloaded Transformers	120
-- 5.3.7 Ferroresonance	125
-- 5.3.8 Conclusions	133
-- 5.4 Switching Overvoltages	135
-- 5.4.1 Introduction	135
-- 5.4.2 Modelling Guidelines	135
-- 5.4.3 Switching Overvoltages	139
-- 5.4.4 Case Studies	149
-- 5.4.5 Validation	154
-- 5.5 Lightning Overvoltages	154
-- 5.5.1 Introduction	154
-- 5.5.2 Modelling Guidelines	155
-- 5.5.3 Case Studies	163
-- 5.5.4 Validation	172
-- 5.6 Very Fast Transient Overvoltages in Gas Insulated Substations	174
-- 5.6.1 Introduction	174
-- 5.6.2 Origin of VFTO in GIS	174
-- 5.6.3 Propagation of VFTs in GISs	176
-- 5.6.4 Modelling Guidelines	180
-- 5.6.5 Case Study 9: VFT in a 765 kV GIS	182
-- 5.6.6 Statistical Calculation	183
-- 5.6.7	

Validation	185
5.7 Conclusions	187
Acknowledgement	187
References	187
6 Analysis of FACTS Controllers and their Transient Modelling Techniques	195
6.1 Introduction	195
6.3 Modelling Guidelines	206
6.3.1 Representation of a Power System	206
6.3.2 Representation of System Control	206
6.3.3 Representation of a Controlled Switch	209
6.3.4 Simulation Errors and Control	210
6.4 Modelling of FACTS Controllers	210
6.4.1 Simulation of an Independent PFC in a Single Line Application	212
6.4.2 Simulation of a Voltage Regulating Transformer	212
6.4.3 Simulation of a Phase Angle Regulator	214
6.4.4 Simulation of a Unified Power Flow Controller	215
6.5 Simulation Results of a UPFC	230
6.6 Simulation Results of an ST	238
6.7 Conclusion	245
Acknowledgement	245
References	245
7 Applications of Power Electronic Devices in Distribution Systems	248
Arindam Ghosh and Farhad Shahnia	
7.1 Introduction	248
7.2 Modelling of Converter and Filter Structures for CPDs	250
7.2.1 Three-Phase Converter Structures	250
7.2.2 Filter Structures	251
7.2.3 Dynamic Simulation of CPDs	252
7.3 Distribution Static Compensator (DSTATCOM)	253
7.3.1 Current Control Using DSTATCOM	253
7.3.2 Voltage Control Using DSTATCOM	256
7.4 Dynamic Voltage Restorer (DVR)	258
7.5 Unified Power Quality Conditioner (UPQC)	263
7.6 Voltage Balancing Using DSTATCOM and DVR	267
7.7 Excess Power Circulation Using CPDs	271
7.7.1 Current-Controlled DSTATCOM Application	271
7.7.2 Voltage-Controlled DSTATCOM Application	272
7.7.3 UPQC Application	276
7.8 Conclusions	278
References	278
8 Modelling of Electronically Interfaced DER Systems for Transient Analysis	280
Amirnaser Yazdani and Omid Alizadeh	
8.1 Introduction	280
8.2 Generic Electronically Interfaced DER System	281
8.3 Realization of Different DER Systems	283
8.3.1 PV Energy Systems	283
8.3.2 Fuel-Cell Systems	284
8.3.3 Battery Energy Storage Systems	284
8.3.4 Supercapacitor Energy Storage System	285
8.3.5 Superconducting Magnetic Energy Storage System	285
8.3.6 Wind Energy Systems	286
8.3.7 Flywheel Energy Storage Systems	287
8.4 Transient Analysis of Electronically Interfaced DER Systems	287
8.5 Examples	288
8.5.1 Example 1: Single-Stage PV Energy System	288
8.5.2 Example 2: Direct-Drive Variable-Speed Wind Energy System	298
8.6 Conclusion	315
References	315
9 Simulation of Transients for VSC-HVDC Transmission Systems Based on Modular Multilevel Converters	317
Hani Saad, S'ebastien Denne't'ere, Jean Mahseredjian, Tarek Ould-Bachir and Jean-Pierre David	
9.1 Introduction	317
9.2 MMC Topology	318
9.3 MMC Models	320
9.3.1 Model 1 - Full Detailed	320
9.3.2 Model 2 - Detailed Equivalent	321
9.3.3 Model 3 - Switching Function of MMC Arm	322
9.3.4 Model 4 - AVM Based on Power Frequency	325
9.4 Control System	327
9.4.1 Operation Principle	327
9.4.2 Upper-Level Control	328
9.4.3 Lower-Level Control	333
9.4.4 Control Structure Requirement Depending on MMC Model Type	336
9.5 Model Comparisons	336
9.5.1 Step Change on Active Power Reference	337
9.5.2 Three-Phase AC Fault	337
9.5.3 Influence of MMC Levels	338
9.5.4 Pole-to-Pole DC Fault	338
9.5.5 Startup Sequence	340
9.5.6 Computational Performance	340
9.6 Real-Time Simulation of MMC Using CPU and FPGA	342
9.6.1 Relation between Sampling Time and N	344
9.6.2 Optimization of Model 2 for Real-Time Simulation	345
9.6.3 Real-Time Simulation Setup	346
9.6.4 CPU-Based Model	347
9.6.5 FPGA-Based Model	350
9.7 Conclusions	356
References	357
10 Dynamic Average Modelling of Rectifier Loads and AC-DC Converters for Power System	

Applications 360 /Sina Chiniforoosh, Juri Jatskevich, Hamid Atighechi and Juan A. Martinez-Velasco --	10.1 Introduction 360 --
	10.2 Front-End Diode Rectifier System Configurations 361 --
	10.3 Detailed Analysis and Modes of Operation 365 --
	10.4 Dynamic Average Modelling 368 --
	10.4.1 Selected Dynamic AVMs 370 --
	10.4.2 Computer Implementation 372 --
	10.5 Verification and Comparison of the AVMs 372 --
	10.5.1 Steady-State Characteristics 372 --
	10.5.2 Model Dynamic Order and Eigenvalue Analysis 376 --
	10.5.3 Dynamic Performance Under Balanced and Unbalanced Conditions 377 --
	10.5.4 Input Sequence Impedances under Unbalanced Conditions 382 --
	10.5.5 Small-Signal Input/Output Impedances 383 --
	10.6 Generalization to High-Pulse-Count Converters 386 --
	10.6.1 Detailed Analysis 387 --
	10.6.2 Dynamic Average Modelling 388 --
	10.7 Generalization to PWM AC-DC Converters 391 --
	10.7.1 PWM Voltage-Source Converters 391 --
	10.7.2 Dynamic Average-Value Modelling of PWM Voltage-Source Converters 392 --
	10.8 Conclusions 394 --
	Appendix 394 --
	References 395 --
	11 Protection Systems 398 /Juan A. Martinez-Velasco --
	11.1 Introduction 398 --
	11.2 Modelling Guidelines for Power System Components 400 --
	11.2.1 Line Models 400 --
	11.2.2 Insulated Cables 401 --
	11.2.3 Source Models 401 --
	11.2.4 Transformer Models 401 --
	11.2.5 Circuit Breaker Models 403 --
	11.3 Models of Instrument Transformers 403 --
	11.3.1 Introduction 403 --
	11.3.2 Current Transformers 404 --
	11.3.3 Rogowski Coils 408 --
	11.3.4 Coupling Capacitor Voltage Transformers 410 --
	11.3.5 Voltage Transformers 412 --
	11.4 Relay Modelling 412 --
	11.4.1 Introduction 412 --
	11.4.2 Classification of Relay Models 412 --
	11.4.3 Relay Models 413 --
	11.5 Implementation of Relay Models 418 --
	11.5.1 Introduction 418 --
	11.5.2 Sources of Information for Building Relay Models 419 --
	11.5.3 Software Tools 420 --
	11.5.4 Implementation of Relay Models 421 --
	11.5.5 Interfacing Relay Models to Recorded Data 422 --
	11.5.6 Applications of Relay Models 423 --
	11.5.7 Limitations of Relay Models 424 --
	11.6 Validation of Relay Models 424 --
	11.6.1 Validation Procedures 424 --
	11.6.2 Relay Model Testing Procedures 425 --
	11.6.3 Accuracy Assessment 426 --
	11.6.4 Relay Testing Facilities 426 --
	11.7 Case Studies 427 --
	11.7.1 Introduction 427 --
	11.7.2 Case Study 1: Simulation of an Electromechanical Distance Relay 428 --
	11.7.3 Case Study 2: Simulation of a Numerical Distance Relay 430 --
	11.8 Protection of Distribution Systems 450 --
	11.8.1 Introduction 450 --
	11.8.2 Protection of Distribution Systems with Distributed Generation 451 --
	11.8.3 Modelling of Distribution Feeder Protective Devices 451 --
	11.8.4 Protection of the Interconnection of Distributed Generators 460 --
	11.8.5 Case Study 3 460 --
	11.8.6 Case Study 4 465 --
	11.9 Conclusions 471 --
	Acknowledgement 475 --
	References 476 --
	12 Time-Domain Analysis of the Smart Grid Technologies: Possibilities and Challenges 481 /Francisco de Le'on, Reynaldo Salcedo, Xuanchang Ran and Juan A. Martinez-Velasco --
	12.1 Introduction 481 --
	12.2 Distribution Systems 482 --
	12.2.1 Radial Distribution Systems 483 --
	12.2.2 Networked Distribution Systems 484 --
	12.3 Restoration and Reconfiguration of the Smart Grid 487 --
	12.3.1 Introduction 487 --
	12.3.2 Heavily Meshed Networked Distribution Systems 487 --
	12.4 Integration of Distributed Generation 498 --
	12.4.1 Scope 498 --
	12.4.2 Radial Distribution Systems 499 --
	12.4.3 Heavily Meshed Networked Distribution Systems 503 --
	12.5 Overvoltages in Distribution Networks 515 --
	12.5.1 Introduction 515 --
	12.5.2 Ferroresonant Overvoltages 516 --
	12.5.3 Long-Duration Overvoltages due to Backfeeding 519 --
	12.6 Development of Data Translators for Interfacing Power-Flow Programs with EMTP-Type Programs 529 --

12.6.1 Introduction	529
12.6.2 Power-Flow to EMTP-RV Translator	530
12.6.3 Example of the Translation of a Transmission Line	533
12.6.4 Challenges of Development	533
12.6.5 Model Validation	535
12.6.6 Recommendations	542
Acknowledgement	546
References	546
13 Interfacing Methods for Electromagnetic Transient Simulation: New Possibilities for Analysis and Design	552
/Shaahin Filizadeh	
13.1 Introduction	552
13.2 Need for Interfacing	553
13.3 Interfacing Templates	554
13.3.1 Static Interfacing	554
13.3.2 Dynamic Interfacing and Memory Management	555
13.3.3 Wrapper Interfaces	555
13.4 Interfacing Implementation Options: External vs Internal Interfaces	555
13.4.1 External Interfaces	556
13.4.2 Internal Interfaces	556
13.5 Multiple Interfacing	556
13.5.1 Core-Type Interfacing	557
13.5.2 Chain-Type Interfacing	557
13.5.3 Loop Interfacing	558
13.6 Examples of Interfacing	558
13.6.1 Interfacing to Matlab/Simulink	558
13.6.2 Wrapper Interfacing: Run-Controllers and Multiple-Runs	560
13.7 Design Process Using EMT Simulation Tools	560
13.7.1 Parameter Selection Techniques	561
13.7.2 Uncertainty Analysis	563
13.8 Conclusions	566
References	566
AnnexA: Techniques and Computer Codes for Rational Modelling of Frequency-Dependent Components and Subnetworks	568
/Bjorn Gustavsen	
A.1 Introduction	568
A.2 Rational Functions	569
A.3 Time-Domain Simulation	569
A.4 Fitting Techniques	569
A.4.1 Polynomial Fitting	569
A.4.2 Bode's Asymptotic Fitting	570
A.4.3 Vector Fitting	570
A.5 Passivity	571
A.6 Matrix Fitting Toolbox	572
A.6.1 General	572
A.6.2 Overview	572
A.7 Example A.1: Electrical Circuit	573
A.8 Example 6.2: High-Frequency Transformer Modelling	575
A.8.1 Measurement	575
A.8.2 Rational Approximation	575
A.8.3 Passivity Enforcement	575
A.8.4 Time-Domain Simulation	576
A.8.5 Comparison with Time-Domain Measurement	577
References	579
AnnexB: Dynamic System Equivalents	581
/Udaya D. Annakkage	
B.1 Introduction	581
B.2 High-Frequency Equivalents	582
B.2.1 Introduction	582
B.2.2 Frequency-Dependent Network Equivalent (FDNE)	582
B.2.3 Examples of High-Frequency FDNE	583
B.2.4 Two-Layer Network Equivalent (TLNE)	586
B.2.5 Modified Two-Layer Network Equivalent	592
B.2.6 Other Methods	594
B.2.7 Numerical Issues	594
B.3 Low-Frequency Equivalents	595
B.3.1 Introduction	595
B.3.2 Modal Methods	596
B.3.3 Coherency Methods	596
B.3.4 Measurement or Simulation-Based Methods	597
B.4 Wideband Equivalents	597
B.5 Conclusions	597
References	598
Index	601

Sommario/riassunto

"The simulation of electromagnetic transients is a mature field that plays an important role in the design of modern power systems. Since the first steps in this field to date, a significant effort has been dedicated to the development of new techniques and more powerful software tools. Sophisticated models, complex solution techniques and powerful simulation tools have been developed to perform studies that are of supreme importance in the design of modern power systems. The first developments of transients tools were mostly aimed at calculating over-voltages. Presently, these tools are applied to a myriad of studies (e.g. FACTS and Custom Power applications, protective relay performance, simulation of smart grids) for which detailed models and fast solution methods can be of paramount importance. This book provides a basic understanding of the main aspects to be considered when performing electromagnetic transients studies, detailing the main applications of present electromagnetic transients (EMT) tools, and discusses new developments for enhanced simulation capability. Key

features: Provides up-to-date information on solution techniques and software capabilities for simulation of electromagnetic transients. Covers key aspects that can expand the capabilities of a transient software tool (e.g. interfacing techniques) or speed up transients simulation (e.g. dynamic model averaging). Applies EMT-type tools to a wide spectrum of studies that range from fast electromagnetic transients to slow electromechanical transients, including power electronic applications, distributed energy resources and protection systems. Illustrates the application of EMT tools to the analysis and simulation of smart grids. "--
