

1. Record Nr.	UNINA9910454216203321
Autore	Alleyne Mervyn C.
Titolo	The construction and representation of race and ethnicity in the Caribbean and the world / / Mervyn C. Alleyne
Pubbl/distr/stampa	Barbados : , : University of the West Indies Press, , 2005
ISBN	1-4356-9495-3
Edizione	[Paperback edition.]
Descrizione fisica	1 online resource (277 p.)
Disciplina	305.8009729
Soggetti	Ethnicity - Caribbean Area Ethnocentrism - Caribbean Area Racism - Caribbean Area Electronic books. Caribbean Area Race relations
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	Contents; Preface; Chapter 1 Introduction; Chapter 2 The Origins of Racial and Ethnic Awareness and Evaluation; Chapter 3 History of Race and Ethnicity: Europe; Chapter 4 Asia and Africa; Chapter 5 The Caribbean; Chapter 6 Puerto Rico; Chapter 7 Martinique; Chapter 8 Jamaica; Chapter 9 Conclusion; References; Index; A; B; C; D; E; F; G; H; I; J; K; L; M; N; P; R; S; T; U; W; Y

2. Record Nr.	UNINA9910140498103321
Autore	Lin Xiangning
Titolo	Electromagnetic transient analysis and novel protective relaying techniques for power transformer / / Xiangning Lin, Jing Ma, Qing Tian, Hanli Weng
Pubbl/distr/stampa	Singapore : , : John Wiley & Sons, Inc., , 2014 [Piscataway, New Jersey] : , : IEEE Xplore, , [2015]
ISBN	1-118-65385-8 1-118-65383-1 1-118-65384-X
Descrizione fisica	1 online resource (341 p.)
Classificazione	TEC031000
Disciplina	621.31/4
Soggetti	Electric relays Electric transformers - Protection Transients (Electricity)
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	About the Authors ix -- Preface xi -- 1 Principles of Transformer Differential Protection and Existing Problem Analysis 1 -- 1.1 Introduction 1 -- 1.2 Fundamentals of Transformer Differential Protection 2 -- 1.2.1 Transformer Faults 2 -- 1.2.2 Differential Protection of Transformers 3 -- 1.2.3 The Unbalanced Current and Measures to Eliminate Its Effect 5 -- 1.3 Some Problems with Power Transformer Main Protection 7 -- 1.3.1 Other Types of Power Transformer Differential Protections 7 -- 1.3.2 Research on Novel Protection Principles 9 -- 1.4 Analysis of Electromagnetic Transients and Adaptability of Second Harmonic Restraint Based Differential Protection of a UHV Power Transformer 17 -- 1.4.1 Modelling of the UHV Power Transformer 18 -- 1.4.2 Simulation and Analysis 20 -- 1.5 Study on Comparisons among Some Waveform Symmetry Principle Based Transformer Differential Protection 27 -- 1.5.1 The Comparison and Analysis of Several Kinds of Symmetrical Waveform Theories 27 -- 1.5.2 The Theory of Waveform Symmetry of Derivatives of Current and Its Analysis 28 -- 1.5.3 Principle and Analysis of the Waveform

Correlation Method 32 -- 1.5.4 Analysis of Reliability and Sensitivity of Several Criteria 33 -- 1.6 Summary 36 -- References 36 -- 2
 Malfunction Mechanism Analysis due to Nonlinearity of Transformer Core 39 -- 2.1 Introduction 39 -- 2.2 The Ultra-Saturation Phenomenon of Loaded Transformer Energizing and its Impacts on Differential Protection 43 -- 2.2.1 Loaded Transformer Energizing Model Based on Second Order Equivalent Circuit 43 -- 2.2.2 Preliminary Simulation Studies 48 -- 2.3 Studies on the Unusual Mal-Operation of Transformer Differential Protection during the Nonlinear Load Switch-In 57 -- 2.3.1 Simulation Model of the Nonlinear Load Switch-In 57 -- 2.3.2 Simulation Results and Analysis of Mal-Operation Mechanism of Differential Protection 62 -- 2.4 Analysis of a Sort of Unusual Mal-operation of Transformer Differential Protection due to Removal of External Fault 70.
 2.4.1 Modelling of the External Fault Inception and Removal and Current Transformer 70 -- 2.4.2 Analysis of Low Current Mal-operation of Differential Protection 72 -- 2.5 Analysis and Countermeasure of Abnormal Operation Behaviours of the Differential Protection of the Converter Transformer 80 -- 2.5.1 Recurrence and Analysis of the Reported Abnormal Operation of the Differential Protection of the Converter Transformer 80 -- 2.5.2 Time-Difference Criterion to Discriminate between Faults and Magnetizing Inrushes of the Converter Transformer 86 -- 2.6 Summary 95 -- References 95 -- 3 Novel Analysis Tools on Operating Characteristics of Transformer Differential Protection 97 -- 3.1 Introduction 97 -- 3.2 Studies on the Operation Behaviour of Differential Protection during a Loaded Transformer Energizing 99 -- 3.2.1 Simulation Models of Loaded Transformer Switch-On and CT 99 -- 3.2.2 Analysis of the Mal-operation Mechanism of Differential Protection 102 -- 3.3 Comparative Investigation on Current Differential Criteria between One Using Phase Current and One Using Phase-Phase Current Difference for the Transformer using Y-Delta Connection 109 -- 3.3.1 Analyses of Applying the Phase Current Differential to the Power Transformer with Y/ Connection and its Existing Bases 109 -- 3.3.2 Rationality Analyses of Applying the Phase Current Differential Criterion to the Power Transformer with Y/ Connection 113 -- 3.4 Comparative Analysis on Current Percentage Differential Protections Using a Novel Reliability Evaluation Criterion 117 -- 3.4.1 Introduction to CPD and NPD 117 -- 3.4.2 Performance Comparison between CPD and NPD in the Case of CT Saturation 118 -- 3.4.3 Performance Comparison between CPD and NPD in the Case of Internal Fault 121 -- 3.5 Comparative Studies on Percentage Differential Criteria Using Phase Current and Superimposed Phase Current 123 -- 3.5.1 The Dynamic Locus of $p - 1p + 1$ in the Case of CT Saturation 123 -- 3.5.2 Sensitivity Comparison between the Phase Current Based and the Superimposed Current Based Differential Criteria 126.
 3.5.3 Security Comparison between the Phase Current Based and the Superimposed Current Based Differential Criteria 128 -- 3.5.4 Simulation Analyses 130 -- 3.6 A Novel Analysis Methodology of Differential Protection Operation Behaviour 132 -- 3.6.1 The Relationship between Transforming Rate and the Angular Change Rate under CT Saturation 132 -- 3.6.2 Principles of Novel Percentage Restraint Criteria 133 -- 3.6.3 Analysis of Novel Percentage Differential Criteria 142 -- 3.7 Summary 151 -- References 151 -- 4 Novel Magnetizing Inrush Identification Schemes 153 -- 4.1 Introduction 153 -- 4.2 Studies for Identification of the Inrush Based on Improved Correlation Algorithm 155 -- 4.2.1 Basic Principle of Waveform Correlation Scheme 155 -- 4.2.2 Design and Test of the Improved

Waveform Correlation Principle	159
4.3 A Novel Method for Discrimination of Internal Faults and Inrush Currents by Using Waveform Singularity Factor	163
4.3.1 Waveform Singularity Factor Based Algorithm	163
4.3.2 Testing Results and Analysis	164
4.4 A New Principle of Discrimination between Inrush Current and Internal Fault Current of Transformer Based on Self-Correlation Function	169
4.4.1 Basic Principle of Correlation Function Applied to Random Single Analysis	169
4.4.2 Theory and Analysis of Waveform Similarity Based on Self-Correlation Function	170
4.4.3 EPDL Testing Results and Analysis	173
4.5 Identifying Inrush Current Using Sinusoidal Proximity Factor	174
4.5.1 Sinusoidal Proximity Factor Based Algorithm	174
4.5.2 Testing Results and Analysis	176
4.6 A Wavelet Transform Based Scheme for Power Transformer Inrush Identification	181
4.6.1 Principle of Wavelet Transform	181
4.6.2 Inrush Identification with WPT	185
4.6.3 Results and Analysis	185
4.7 A Novel Adaptive Scheme of Discrimination between Internal Faults and Inrush Currents of Transformer Using Mathematical Morphology	190
4.7.1 Mathematical Morphology	190
4.7.2 Principle and Scheme Design	193
4.7.3 Testing Results and Analysis	194
4.8 Identifying Transformer Inrush Current Based on Normalized Grille Curve	202
4.8.1 Normalized Grille Curve	202
4.8.2 Experimental System	205
4.8.3 Testing Results and Analysis	207
4.9 A Novel Algorithm for Discrimination between Inrush Currents and Internal Faults Based on Equivalent Instantaneous Leakage Inductance	211
4.9.1 Basic Principle	211
4.9.2 EILI-Based Criterion	217
4.9.3 Experimental Results and Analysis	218
4.10 A Two-Terminal Network-Based Method for Discrimination between Internal Faults and Inrush Currents	222
4.10.1 Basic Principle	222
4.10.2 Experimental System	230
4.10.3 Testing Results and Analysis	230
4.11 Summary	234
References	234
5 Comprehensive Countermeasures for Improving the Performance of Transformer Differential Protection	237
5.1 Introduction	237
5.2 A Method to Eliminate the Magnetizing Inrush Current of Energized Transformers	242
5.2.1 Principles and Modelling of the Inrush Suppressor and Parameter Design	242
5.2.2 Simulation Validation and Results Analysis	249
5.3 Identification of the Cross-Country Fault of a Power Transformer for Fast Unblocking of Differential Protection	255
5.3.1 Criterion for Identifying Cross-Country Faults Using the Variation of the Saturated Secondary Current with Respect to the Differential Current	255
5.3.2 Simulation Analyses and Test Verification	257
5.4 Adaptive Scheme in the Transformer Main Protection	268
5.4.1 The Fundamental of the Time Difference Based Method to Discriminate between the Fault Current and the Inrush of the Transformer	268
5.4.2 Preset Filter	269
5.4.3 Comprehensive Protection Scheme	271
5.4.4 Simulation Tests and Analysis	274
5.5 A Series Multiresolution Morphological Gradient Based Criterion to Identify CT Saturation	294
5.5.1 Time Difference Extraction Criterion Using Mathematical Morphology	294
5.5.2 Simulation Study and Results Analysis	297
5.5.3 Performance Verification with On-site Data	302
5.6 A New Adaptive Method to Identify CT Saturation Using a Grille Fractal	304
5.6.1 Analysis of the Behaviour of CT Transient Saturation	304
5.6.2 The Basic Principle and Algorithm of Grille Fractal	308
5.6.3 Self-Adaptive Generalized Morphological Filter	312
5.6.4 The Design of Protection Program and the Verification of Results	313
5.7 Summary	317
References	317
Index	319

transformer malfunction analysis as well as protection. One of the current research directions is the malfunction mechanism analysis due to nonlinearity of transformer core and comprehensive countermeasures on improving the performance of transformer differential protection. Here, the authors summarize their research outcomes and present a set of recent research advances in the electromagnetic transient analysis, the application on power transformer protections, and present a more systematic investigation and review in this field. This research area is still progressing, especially with the fast development of Smart Grid. This book is an important addition to the literature and will enhance significant advancement in research. It is a good reference book for researchers in power transformer protection research and a good text book for graduate and undergraduate students in electrical engineering. Chapter headings include: Transformer differential protection principle and existing problem analysis; Malfunction mechanism analysis due to nonlinearity of transformer core; Novel analysis tools on operating characteristics of Transformer differential protection; Novel magnetizing inrush identification schemes; Comprehensive countermeasures on improving the performance of transformer differential protection An advanced level examination of the latest developments in power transformer protection Presents a new and systematic view of power transformer protection, enabling readers to design new models and consider fresher design approaches Offers a set of approaches to optimize the power system from a microeconomic point of view "--

"This book addresses the technical challenges of transformer malfunction analysis as well as protection"--
