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Nota di contenuto	Energy Management in Microgrid with Battery Storage System -- Wind Energy Conversion Systems: A Review on Aerodynamic, Electrical and Control Aspects, Recent Trends, Comparisons and Insights -- Buck-Boost Converter-Based Sliding Mode Maximum Power Point Tracking System for Photovoltaic Systems -- Optimized Control of an Isolated Wind Energy Conversion System -- Emerging Technologies for the Integration of Renewable Energy, Energy Storage and Electric Vehicles -- Coordinated Control Strategy for LFC in an Islanded Microgrid: A JAYA Algorithm based Cascade PD-PI Approach -- Simulation and Analysis of Solar-Wind System for EV Charging -- Performance of Grid-Connected Shunt Active Filter Equipped PV System -- Smart Energy Management Model for Electric Vehicles -- Improved Linear Sinusoidal Tracer based Control for Three-Phase VSC in Photovoltaics -- Analysis, Modeling and Implementation of Electric Vehicle Converter Configurations -- Integration of Electric Vehicles with Smart Grid --

Installation ofUPQC in Radial Distribution System for Enhancement of Voltage Profile -- Infinite Impulse Response Peak Filter with Salp Swarm Optimization Technique for Improvement of DVR Reliability -- Design of Fuzzy Logic Controller based BLDC Motor -- Impact of Discrete-Time Modeling on Dual Input Modified SEPIC Converter -- Directional Relaying Issues in Power Transmission Networks -- Passivity based Modeling of a Two-Input DC-DC Power Converter with Constant Power and Constant Voltage Load -- SVPWM based Transformerless Z-Source Five Level Cascaded Inverter with Grid Connected PV System -- An Empirical Analysis of Campus Energy Monitoring Systems using Cloud-Based Storage -- Development of Power Quality Disturbances Dataset for Classification Using Deep Learning -- Short Circuit Analysis and Relay Coordination of Power System Network -- Power quality disturbances data dimensionality reduction using autoencoder -- The Metamorphic Influence of Nascent Technologies on Intelligent Grid Networks -- A Novel FSDReconfiguration Technique for Dynamic Shading in Photovoltaic Systems -- Wavelet-ANN Based Detection of Fault Location of Renewable Energy Sources Integrated Power Transmission System -- Smart Grid and Energy Management Systems: A Global Perspective -- Active Power Load and Electrical Energy Price Datasets for Load and Price Forecasting -- Design and Analysis of Digitally Operated PV Emulator with Resistive Load Using Newton-Raphson Method -- Design and Analysis of Digitally Controlled Newton-Raphson Method Based Hardware Integrated PV Emulator with Resistive Load -- Optimal Location Selection of Electric Vehicle Charging Stations and Capacitors in Radial Distribution Networks Using GJO Algorithm.

Sommario/riassunto

This book presents mathematical models of various renewable energy sources (RESs) such as wind energy systems, solar PV systems, battery energy storage systems, pumped-storage hydropower, biomass, and electric vehicles (EVs). It also discusses the challenging task of the integration of high penetration of renewable energies and EVs within existing power systems. The uncertainty related to RESs, electric vehicle charging, and load demands is also modelled. The book provides illustrative and comprehensive practical case studies to enable a complete understanding of the proposed methodologies. This book will consider the nuances of all these new paradigms, smart grid components, technology, and the impact of energy storage, EVs, and distributed energy resources, in the power networks.