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Nota di contenuto	Fuel Cell Technology - Policy, Features, and Applications: A Mini-Review -- Concept of Hydrogen Redox Electric Power and Hydrogen Energy Generators -- Evaluation of Cell Performance and Durability for Cathode Catalysts (Platinum Supported on Carbon Blacks or Conducting Ceramic Nanoparticles) During Simulated Fuel Cell Vehicle Operation: Start-up / Shutdown Cycles and Load Cycles -- Metal Carbonyl Cluster Complexes as Electrocatalysts for PEM Fuel Cells -- Non-Carbon Support Materials Used in Low-Temperature Fuel Cells -- Noble Metal Electrocatalysts for Anode and Cathode in Polymer Electrolyte Fuel Cells -- Nano Materials in Proton Exchange Membrane Fuel Cells -- Nanostructured Electrodes for High-Performing Solid Oxide Fuel Cells -- Modelling Analysis for Species, Pressure, and Temperature Regulation in Proton Exchange Membrane Fuel Cells -- The Application of Computational Thermodynamics to the Cathode-Electrolyte in Solid Oxide Fuel Cells -- Application of DFT Methods to Investigate Activity and Stability of Oxygen Reduction Reaction Electrocatalysts -- Hydrogen Fuel Cell as Range Extender in Electric Vehicle Powertrains: Fuel Optimization Strategies -- Totalized Hydrogen Energy Utilization System -- Influence of Air Impurities on the Performance of Nanostructured PEMFC Catalysts -- Solid-State Materials for Hydrogen Storage -- Stress Distribution in PEM Fuel Cells. Traditional Materials

and New Trends -- Recent Progress on the Utilization of Nano Materials in Micro-Tubular Solid Oxide Fuel Cell -- Nanostructured Materials for Advanced Energy Conversion and Storage Devices: Safety Implications at End-of-Life Disposal.

Sommario/riassunto

The energy crisis and pollution have posed significant risks to the environment, transportation, and economy over the last century. Thus, green energy becomes one of the critical global technologies and the use of nanomaterials in these technologies is an important and active research area. This book series presents the progress and opportunities in green energy sustainability. Developments in nanoscaled electrocatalysts, solid oxide and proton exchange membrane fuel cells, lithium ion batteries, and photovoltaic techniques comprise the area of energy storage and conversion. Developments in carbon dioxide (CO2) capture and hydrogen (H2) storage using tunable structured materials are discussed. Design and characterization of new nanoscaled materials with controllable particle size, structure, shape, porosity and band gap to enhance next generation energy systems are also included. The technical topics covered in this series are metal organic frameworks, nanoparticles, nanocomposites, proton exchange membrane fuel cell catalysts, solid oxide fuel cell electrode design, trapping of carbon dioxide, and hydrogen gas storage.