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Nota di contenuto	Front Cover -- Modeling and Numerical Simulation of Proton Exchange Membrane Fuel Cells -- Copyright Page -- Contents -- 1 Introduction to proton exchange membrane fuel cell -- 1.1 The development of proton exchange membrane fuel cells -- 1.1.1 An overview of proton exchange membrane fuel cells -- 1.1.2 History and early development of fuel cells -- 1.1.3 Current implementations and future milestones -- 1.1.4 State-of-the-art of proton exchange membrane fuel cell components and operation -- 1.1.5 Operation of proton exchange membrane fuel cells -- 1.1.6 Proton exchange membrane -- 1.1.7 Catalysts and electrodes -- 1.1.8 Gas diffusion layers -- 1.1.9 Bipolar plates and current collectors -- 1.1.10 Gaskets -- 1.2 Objectives and importance of proton exchange membrane fuel cell modeling -- 1.2.1 Overview of modeling and simulation -- 1.2.2 Benefits and applications of modeling proton exchange membrane fuel cells -- 1.3 The current status of proton exchange membrane fuel cell modeling and simulation -- 1.3.1 Modeling approaches and techniques -- 1.3.2 Computational fluid dynamics modeling -- 1.3.3 Challenges in computational fluid dynamic modeling -- References -- 2 Single-phase transport modeling in proton exchange membrane fuel cell -- 2.1 Mathematical formulation of physical and electrochemical phenomena in proton exchange membrane fuel cell components -- 2.2 Summary of key fuel

cell parameters and physical and electrochemical properties -- 2.3 Modeling of air-cooled proton exchange membrane fuel cell -- 2.3.1 Overview -- 2.3.2 Computational domain -- 2.3.3 Proton exchange membrane fuel cell model validation -- 2.3.3.1 Stack assembly -- 2.3.3.2 Test procedure -- 2.3.4 Discussion on air-cooled proton exchange membrane fuel cell performance -- 2.3.5 Summary -- 2.4 Exercise -- Appendix 2.1 -- References.

3 Multiphase transport modeling in proton exchange membrane fuel cell -- 3.1 Overview of multiphase models -- 3.1.1 Multiphase mixture formulation -- 3.1.2 Finite volume method -- 3.1.3 Direct numerical simulation -- 3.1.4 Pore network models -- 3.1.5 Lattice Boltzmann method -- 3.2 Multiphase flow in gas flow channels and porous electrodes -- 3.2.1 Multiphase mixture model -- 3.2.2 Lattice Boltzmann model -- 3.2.2.1 Model description -- 3.2.2.2 Model validation -- 3.2.2.2.1 Bubble test -- 3.2.2.2.2 Static contact angle test -- 3.3 Summary of the key multiphase model parameters and physical and electrochemical properties -- 3.4 Characterization analysis of catalyst layer and gas diffusion layer using lattice Boltzmann model -- 3.5 Numerical analysis of liquid water from generation and accumulation to motion in proton exchange membrane fuel cell -- References -- 4 Modeling the cold start process of proton exchange membrane fuel cells -- 4.1 Three-dimensional nonisothermal transient cold start model of proton exchange membrane fuel cell -- 4.1.1 Mass and momentum conservation -- 4.1.2 Species transport -- 4.1.2.1 Reactant transport -- 4.1.2.2 Water transport -- 4.1.3 Ice formation -- 4.1.4 Charge conservation -- 4.1.5 Energy conservation -- 4.1.6 Electrochemical kinetics -- 4.2 Summary of the key cold start parameters and physical and electrochemical properties -- 4.3 The role of catalyst layer pore morphology on cold start process of proton exchange membrane fuel cell -- 4.3.1 Overview of the role of catalyst layer pore morphology -- 4.3.2 Current status of modeling -- 4.3.3 Effect of cathode catalyst layer mesoscopic morphology -- 4.3.4 Physical Domain -- 4.3.5 Results and discussion -- 4.3.6 Summary -- 4.4 The impact of gas diffusion layer intrusion on the cold start performance -- 4.4.1 Overview of the impact of gas diffusion layer intrusion. 4.4.2 Current status of modeling -- 4.4.3 Effect of gas diffusion layer intrusion and deformation -- 4.4.4 Results and Discussion -- 4.4.5 Summary -- 4.5 A Comprehensive understanding of the endplate assembly effect on cold start behavior in proton exchange membrane fuel cell stacks -- 4.5.1 An overview -- 4.5.2 Current status of modeling -- 4.5.3 Effect of endplate assembly on cold start behavior -- 4.5.4 Results and discussion -- 4.5.5 Summary -- 4.6 The influence of key coolant circulation parameters on the cold start capability -- 4.6.1 An overview -- 4.6.2 Current status of modeling -- 4.6.3 Effect of key coolant circulation parameters -- 4.6.4 Results and discussion -- 4.6.5 Summary -- 4.7 The impact of nonuniform and maldistributed inflow of reactants and coolant on the cold start -- 4.7.1 An overview -- 4.7.2 Current status of modeling -- 4.7.3 Impact of nonuniform and maldistributed inflow of reactants and coolant -- 4.7.4 Results and discussion -- 4.7.5 Summary -- 4.8 Major challenges and perspectives on cold start simulation -- 4.9 Exercise -- Appendix 4.1 -- References -- 5 Degradation and lifetime modeling of proton exchange membrane fuel cell -- 5.1 Stress-induced degradation mechanisms in proton exchange membrane fuel cells -- 5.1.1 Stacking stresses -- 5.1.2 Hygro-thermal stresses -- 5.1.3 Freeze/thaw stresses -- 5.2 Physics-based modeling methods -- 5.2.1 Membrane degradation physical-based method -- 5.2.2 Catalyst layer degradation mechanism model --

5.2.3 Gas diffusion layer degradation physics-based method -- 5.2.4 Empirical degradation physics-based method -- 5.2.5 Semiempirical degradation physics-based method -- 5.2.6 Summary -- 5.3 Data-driven modeling methods -- 5.3.1 Artificial neural network model -- 5.3.2 Support vector machine model -- 5.3.3 Gaussian process -- 5.3.4 Fuzzy logic model. 5.3.5 Convolutional neural network-based models -- 5.3.6 Summary -- 5.4 Major challenges and perspectives on degradation modeling -- References -- 6 Recent progress on multiscale and multidimensional modeling of proton exchange membrane fuel cell -- 6.1 Multidimensional modeling of proton exchange membrane fuel cells -- 6.2 Microstructure scale modeling of proton exchange membrane fuel cell components -- 6.3 Nanoscale modeling of proton exchange membrane fuel cell components -- 6.3.1 Molecular dynamics simulations -- 6.3.2 Density functional theory -- 6.3.3 Continuum models -- 6.4 Multiscale coupled models -- 6.5 Major challenges and perspectives on multiscale modeling -- References -- Index -- Back Cover.

Sommario/riassunto

Modeling and Numerical Simulation of Proton Exchange Membrane Fuel Cells: Concept, Methods, and Challenges provides a concise guide to the modeling of PEM fuel cells. The book offers detailed methodologies, codes, and algorithms on every aspect of PEM fuel cells, from cold start to degradation.
