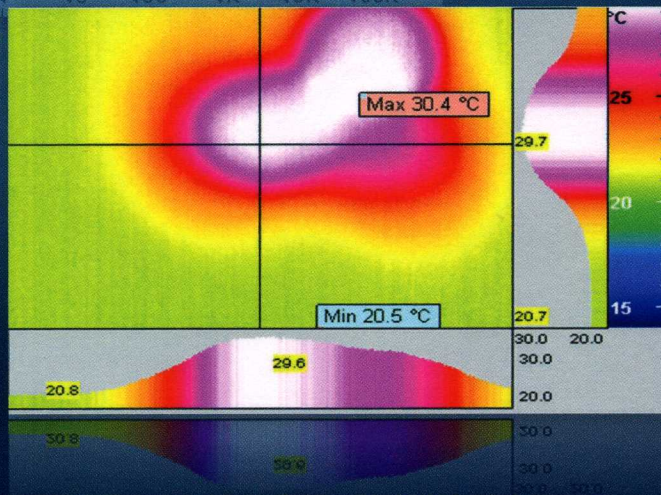
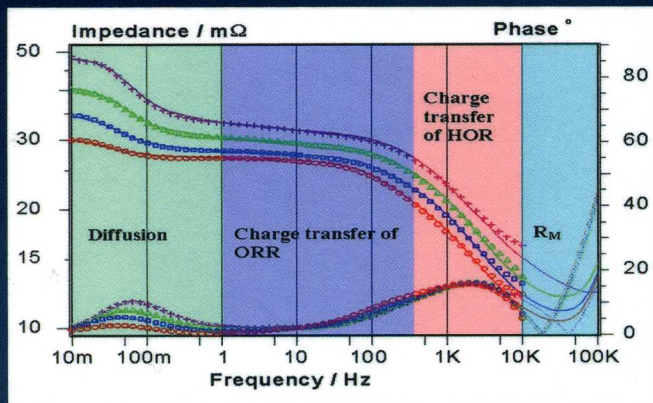


PEM FUEL CELL DIAGNOSTIC TOOLS



**EDITED BY
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Contents

Preface.....	vii
Editors.....	ix
Contributors	xi
Introduction	xv

PART I *In Situ* Diagnostic Tools

1 Proton Exchange Membrane Fuel Cell Testing.....	3
<i>Jonathan J. Martin</i>	
2 Polarization Curve	15
<i>Dong-Yun Zhang, Xianxia Yuan, and Zi-Feng Ma</i>	
3 Electrochemical Impedance Spectroscopy	37
<i>Norbert Wagner</i>	
4 Cyclic Voltammetry	71
<i>Jinfeng Wu, Xiao-Zi Yuan, and Haijiang Wang</i>	
5 Linear Sweep Voltammetry.....	87
<i>Shengsheng Zhang, Xiao-Zi Yuan, and Haijiang Wang</i>	
6 Current Interruption.....	101
<i>Miguel A. Rubio, Alfonso Urquia, and Sebastian Dormido</i>	
7 Cathode Discharge	129
<i>Herwig Robert Haas</i>	
8 Water Transfer Factor Measurement	149
<i>Tak Cheung Yau, Pierre Sauriol, Xiaotao Bi, and Jürgen Stumper</i>	
9 Current Mapping.....	181
<i>Dilip Natarajan and Trung Van Nguyen</i>	
10 Transparent Cell.....	209
<i>Chun-Ying Hsu and Fang-Bor Weng</i>	

11	Magnetic Resonance Imaging.....	229
	<i>Ziheng Zhang and Bruce J. Balcom</i>	
12	Neutron Imaging.....	255
	<i>Pierre Boillat and Günther G. Scherer</i>	

PART II *Ex Situ* Diagnostic Tools

13	X-Ray Diffraction.....	289
	<i>Justin Roller</i>	
14	Scanning Electron Microscopy.....	315
	<i>Robert Alink and Dietmar Gerteisen</i>	
15	Transmission Electron Microscopy.....	333
	<i>Rui Lin, Junsheng Zheng, and Jian-Xin Ma</i>	
16	Infrared Imaging.....	351
	<i>Xiao-Zi Yuan, Shengsheng Zhang, Jinfeng Wu, and Haijiang Wang</i>	
17	Fourier Transform Infrared Spectroscopy.....	369
	<i>Andrea Haug, Renate Hiesgen, Mathias Schulze, Günter Schiller, and K. Andreas Friedrich</i>	
18	X-Ray Photoelectron Spectroscopy.....	381
	<i>Mathias Schulze, Andrea Haug, and K. Andreas Friedrich</i>	
19	Atomic Force Microscopy.....	395
	<i>Renate Hiesgen and K. Andreas Friedrich</i>	
20	Binary Gas Diffusion.....	423
	<i>Jun Shen</i>	
21	Gas Permeability of Proton-Exchange Membranes.....	443
	<i>Dmitri Bessarabov</i>	
22	Species Detection.....	475
	<i>Khalid Fatih</i>	
23	Rotating Disk Electrode/Rotating Ring-Disk Electrode.....	491
	<i>Xuan Cheng, Hengyi Li, and Qiaoming Zheng</i>	
24	Porosimetry and Characterization of the Capillary Properties of Gas Diffusion Media.....	515
	<i>Jeff T. Gostick, Michael W. Fowler, Mark D. Pritzker, and Marios A. Ioannidis</i>	
	Index.....	533

PEM FUEL CELL DIAGNOSTIC TOOLS

PEM Fuel Cell Diagnostic Tools presents various tools for diagnosing PEM fuel cells and stacks, including *in situ* and *ex situ* diagnostic tools, electrochemical techniques, and physical/chemical methods. The text outlines the principles, experimental implementation, data processing, and application of each technique, along with its capabilities and weaknesses.

The book covers many diagnostics employed in the characterization and determination of fuel cell performance. It discusses commonly used conventional tools, such as cyclic voltammetry, electrochemical impedance spectroscopy, scanning electron microscopy, and transmission electron microscopy. It also examines special tools developed specifically for PEM fuel cells, including transparent cells, cathode discharge, and current mapping, as well as recent advanced tools for diagnosis, such as magnetic resonance imaging and atomic force microscopy. For clarity, the book splits these diagnostic methodologies into two parts—*in situ* and *ex situ*. To better understand the tools, PEM fuel cell testing is also discussed. Each self-contained chapter provides cross-references to other chapters.

Features

- Provides a comprehensive toolbox for PEM fuel cell durability
- Covers a wealth of *in situ* and *ex situ* diagnostic tools, including conventional (electrochemical impedance spectroscopy) and newly developed (atomic force microscopy)
- Describes the principles, experimental implementation, applications, advantages, and limitations of each technique

Written by international scientists active in PEM fuel cell research, this volume incorporates state-of-the-art technical advances in PEM fuel cell diagnosis. The diagnostic tools presented help readers to understand the physical and chemical phenomena involved in PEM fuel cells.



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