Contents

Foreword ................................................................. v
Preface ................................................................. vii
About the Editors .................................................... xi
Contributors ............................................................. xiii

1 Fuel Cell Fundamentals ............................................ 1
   S.M. Javaid Zaidi and M. Abdur Rauf

2 Research Trends in Polymer Electrolyte Membranes
   for PEMFC ......................................................... 7
   S.M. Javaid Zaidi

3 Fuel Cell Technology Review ................................. 27
   A.F. Ismail, R. Naim, and N.A. Zubir

4 Development of Sulfonated Poly(ether-ether ketone)s
   for PEMFC and DMFC ......................................... 51
   Dae Sik Kim and Michael D. Guiver

5 Fuel Cell Membranes by Radiation-Induced Graft
   Copolymerization: Current Status, Challenges,
   and Future Directions ........................................ 87
   Mohamed Mahmoud Nasef

6 Design and Development of Highly Sulfonated Polymers
   as Proton Exchange Membranes for High Temperature
   Fuel Cell Applications ...................................... 115
   Thuy D. Dang, Zongwu Bai, and Mitra Yoonessi

7 Polymer Composites for High-Temperature
   Proton-Exchange Membrane Fuel Cells .................. 159
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Blend Concepts for Fuel Cell Membranes</td>
<td>185</td>
</tr>
<tr>
<td>9</td>
<td>Organic-Inorganic Membranes for Fuel Cell Application</td>
<td>223</td>
</tr>
<tr>
<td>11</td>
<td>Membrane and MEA Development in Polymer Electrolyte Fuel Cells</td>
<td>253</td>
</tr>
<tr>
<td>12</td>
<td>Carbon-Filled Polymer Blends for PEM Fuel Cell Bipolar Plates</td>
<td>281</td>
</tr>
<tr>
<td>13</td>
<td>Critical Issues in the Commercialization of DMFC and Role of Membranes</td>
<td>307</td>
</tr>
<tr>
<td>14</td>
<td>Modified Nafton as the Membrane Material for Direct Methanol Fuel Cells</td>
<td>341</td>
</tr>
<tr>
<td>15</td>
<td>Methanol Permeation Through Proton Exchange Membranes of DMFCs</td>
<td>361</td>
</tr>
<tr>
<td>16</td>
<td>Systematic Design of Polymer Electrolyte Membranes for Fuel Cells Using a Pore-Filling Membrane Concept</td>
<td>385</td>
</tr>
<tr>
<td>17</td>
<td>Research and Development on Polymeric Membranes for Fuel Cells: An Overview</td>
<td>401</td>
</tr>
</tbody>
</table>

Index 421
Polymer Membranes for Fuel Cells
Zaidi, J.; Matsuura, T. (Eds.)
2009, 550 p., Hardcover