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Nota di contenuto	Contents -- Preface -- A Random Walk through Membrane Science -- From Water Desalination and Artificial Kidneys to Fuel Cell Separators and Membrane Reactors -- Abstract -- Introduction -- 2. The Structures of Synthetic Membranes and Their Function -- 3. Assessment of Today's State of Membrane Science and Technology -- 4. The Membrane-Based Industry, Its Structure and Market Strategy -- 5. Research Needs in Membrane Science and Technology -- 6. The Future of Membrane Science and Technology -- References -- Preparation and Application of Ion Exchange Membranes: Current Status and Perspective Abstract -- 1. Development of Ion Exchange Membranes and Related Processes -- 2. Preparation of Ion Exchange Membranes -- 3. Applications of Ion Exchange Membranes -- 4. Conclusive Remarks and the Perspective -- Acknowledgments -- References -- Proton Exchange Membranes and Fuel Cells -- Abstract -- 1. Introduction -- 2. State-of-the-Art -- References -- Organic/Inorganic Hybrid Membranes: Overview and Perspective -- Abstract -- 1. Introduction: Membranes and Membrane Materials -- 2. Classification and Nomenclature of Hybrid Membranes -- 3. Historic Development of Hybrid Membranes -- 4. Preparation of Hybrid Membranes -- 5. Applications of Hybrid Membranes -- 6. Conclusions and Remarks -- 7. Acknowledgments -- References -- Pervaporation Membranes for Organic Separation -- Abstract -- 5.1. Introduction -- 5.2. Fundamentals of Pervaporation Separation

Process -- 5.3. Factors Influencing Pervaporation Membrane Performance -- 5.4. Structure Engineering of Pervaporation Membranes -- 5.5. Recent Research Progress of Pervaporation Membranes -- 5.6. Industrial Applications and Commercial Aspects -- 5.7. Conclusions and Future Perspective -- Acknowledgments -- References -- Membrane Bioreactor: Theory and Practice -- Abstract -- 1. Membrane Bioreactor (MBR) -- 2. Membrane Fouling in MBR -- 3. Membrane Flux Decline Models -- 4. Current Practice of Membrane Bioreactor (MBR) -- References -- Membrane Integration Processes in Industrial Applications -- Abstract -- 1. Introduction -- 2. Membrane Technology Integration Based on Desalting Electrodialysis -- 3. Membrane Technology Integration Based on Electrodialysis with Bipolar Membranes -- 4. Integration of Reactors with Ion Exchange Membranes -- 5. Integration of Ion Exchanges with Ion Exchange Membranes -- 6. Other Integration Processes Based on Ion Exchange Membranes -- 7. Other Integrated Membrane Processes -- 8. Conclusion -- Acknowledgment -- References -- Membrane Controlled Release -- Abstract -- 1. Introduction -- 2. Thermo-Responsive Membrane Controlled Release.