

SECTION 1: TECHNOLOGY AND THERAPEUTIC TECHNIQUES

Section 1A: Electrophysiologic Techniques

- **Chapter 1: Fundamental Aspects of Electrophysiology Procedures.** *Ann C. Garlitski, N.A. Mark Estes III*
- **Chapter 2: Electrocardiography for the Invasive Electrophysiologist.** *Christopher J. McLeod, Traci L. Buescher, Samuel J. Asirvatham*
- **Chapter 3: Complex Catheter Recording and Mapping Techniques in the EP Lab.** *Andrew Krumerman, John D. Fisher*
- **Chapter 4: Advances in Electroanatomic Mapping Systems.** *Brian Cross, Ann C. Garlitski, N. A. Mark Estes III*
- **Chapter 5: Intraoperative Mapping for the Surgeon and Electrophysiologist.** *John M. Miller, Daniel J. Beckman, Yousuf Mahomed*
- **Chapter 6: Special Considerations for Pediatric Electrophysiological Procedures.** *George Van Hare*

Section 1B: Imaging Technology

- **Chapter 7: Fundamentals and Applications of Echocardiographic Methods and Systems in the Electrophysiology Laboratory.** *Shantanu P. Sengupta, A. Jamil Tajik, Bijoy K. Khandheria*
- **Chapter 8: The Role of 3D Transthoracic and Transesophageal Echocardiography in Interventional Electrophysiology.** *Wael AlJaroudi, Fadi G. Hage, Navin C. Nanda*
- **Chapter 9: Intracardiac Echocardiography.** *Susan S. Kim, Bradley P. Knight, Robert Schweikert, Sanjeev Saksena*
- **Chapter 10: Radiological Principles of Cardiac Computed Tomography, Magnetic Resonance Imaging, and Fusion Imaging.** *Alejandro Jimenez, Timm M. Dickfeld*
- **Chapter 11: Cardiac Computed Tomography and Magnetic Resonance Image Interpretation During Interventional Procedures.** *Saman Nazarian, Henry R. Halperin, Hugh Calkins*
- **Chapter 12: Hybrid Operating Rooms.** *Joseph Yamine, Gregory F. Michaud, William G. Stevenson, Laurence Epstein*

Section 1C: Device Technology

- **Chapter 13: New Developments in Lead and Introducer Systems.** *Brian J. Cross, Mark S. Link*
- **Chapter 14: New Innovations in Implantable Pulse Generators and Heart Failure Devices.** *Helge U. Simon, Johannes Brachmann*
- **Chapter 15: Implantable and Remote Monitoring.** *Werner Jung*
- **Chapter 16: Percutaneous Left Atrial Appendage Occlusion.** *Heyder Omran*
- **Chapter 17: Principles and Techniques for Lead Extraction and Device System Revision for the Surgeon and Interventionalist.** *Melanie Maytin, Laurence M. Epstein*

Section 1D: Ablation Technology

- **Chapter 18: Anatomy and Histopathology of Ablation Interventions.** *S. Yen Ho*
- **Chapter 19: Physical and Experimental Aspects of Radiofrequency Energy, Generators and Energy Delivery Systems.** *Munther K. Homoud, Abram Mozes*
- **Chapter 20: Cryothermal Ablation Technology and Catheter Delivery Systems.** *Rohit Bhagwandien, Paul Knops, Luc Jordaens*
- **Chapter 21: Laser, Ultrasound, and Microwave Ablation.** *Paul J. Wang*
- **Chapter 22: Ablation Technology for the Surgical Treatment of Atrial Fibrillation.** *Richard B. Schuessler, Ralph J. Damiano, Jr.*
- **Chapter 23: Remote Navigation in Catheter Procedures.** *J. David Burkhardt, Luigi DiBiase, Andrea Natale*

Section 1E: Drug Therapy

- **Chapter 24: How to Perform Drug Testing and Use Antiarrhythmic Drugs in Clinical Electrophysiology.** *Manoj N. Obeyesekere, Peter Leong-Sit, Lorne J. Gula, Raymond Yee, Allan C. Skanes, George J. Klein, Andrew D. Krahn*
- **Chapter 25: Clinical Pharmacology of Anesthetic Agents and Their Application in Cardiac Electrophysiologic Procedures.** *Jun Lin, David G. Benditt, Fei Lü*

SECTION 2: INTERVENTIONAL ELECTROPHYSIOLOGY PROCEDURES

Section 2A: Diagnostic and Mapping Techniques During Percutaneous Catheter and Surgical EP Procedures

- **Chapter 26: Sinus Node and AV Conduction System.** *Stavros E. Mountantonakis, Edward P. Gerstenfeld*
- **Chapter 27: Paroxysmal Supraventricular Tachycardias.** *Thorsten Lewalter*
- **Chapter 28: Atrial Tachycardia and Atrial Flutter.** *Frederick T. Han, Nitish Badhwar*
- **Chapter 29: Atrial Fibrillation: Clinical Electrophysiologic Evaluation.** *Rangadham Nagarakanti, Nicholas D. Skadsberg, Sanjeev Saksena*
- **Chapter 30: Ventricular Tachycardia with Heart Disease.** *Wendy S. Tzou, Francis E. Marchlinski*
- **Chapter 31: Idiopathic Ventricular Arrhythmias.** *Bruno R. Andrea, Gerhard Hindricks, Arash Arya*
- **Chapter 32: Polymorphic Ventricular Tachycardia and Ventricular Fibrillation: Mapping in Percutaneous Catheter and Surgical EP Procedures.** *Mélèze Hocini, Ashok J. Shah, Shinsuke Miyazaki, Lena Rivard, Amir S. Jadidi, Daniel Scherr, Stephen B. Wilton, Laurent Roten, Patrizio Pascale, Michala Pedersen, Nicolas Derval, Sébastien Knecht, Frédéric Sacher, Pierre Jaïs, Michel Haïssaguerre*
- **Chapter 33: Mapping of Arrhythmias During Pediatric Electrophysiology Procedures.** *Larry A. Rhodes*
- **Chapter 34: Intraoperative Mapping During Surgical Ablation Procedures.** *Takashi Nitta, Shun-ichiro Sakamoto*

Section 2B: Catheter Ablation: Procedural Techniques and Endpoints

- **Chapter 35: Anesthesia and Airway Management for Ablation.** *Natalia S. Ivascu, Brigid C. Flynn*
- **Chapter 36: High-Frequency Jet Ventilation in Electrophysiology.** *Jeff E. Mandel, Nabil M. Elkassabany*
- **Chapter 37: Anesthesia for Electrophysiological Surgery and Procedures: Quality, Safety and Outcomes.** *Alfred J. Albano, Alexander G. Wolf, Michael England*
- **Chapter 38: Atrioventricular Junction Ablation.** *Andrea Corrado, Antonio Rossillo, Paolo China, Antonio Raviele*
- **Chapter 39: Sinus Node and Ablation and Atrioventricular Node Reentry Ablation.** *Wanwarang Wongcharoen, Shih-Ann Chen*
- **Chapter 40: Catheter Ablation of Accessory AV Pathways (Wolff–Parkinson–White Syndrome and Variants).** *Hiroshi Nakagawa, Warren M. Jackman*
- **Chapter 41: Atrial Flutter: Right Atrial and Left Atrial Flutter.** *Steven M. Markowitz, Bruce B. Lerman*
- **Chapter 42: Atrial Fibrillation**
 - **A: Atrial Fibrillation: Linear Catheter Ablation.** *Carlo Pappone, Vincenzo Santinelli*
 - **B: Atrial Fibrillation: Focal and Map-guided Ablation.** *Mauricio S. Arruda, Ashish A. Bhimani*
 - **C: Laser and Cryothermal Balloon Ablation of Pulmonary Veins to Treat Atrial Fibrillation.** *Thorsten Lewalter, Rangadham Nagarakanti, Sanjeev Saksena*
- **Chapter 43: Ventricular Tachycardia in the Apparently Normal Heart: Optimizing Safety and Results with Ablative Therapy.** *Amit Noheria, Mohamed Nosair, Traci L. Buescher, Christopher J. McLeod, Samuel J. Asirvatham*
- **Chapter 44: Ventricular Tachycardia with Ischemic and Nonischemic Heart Disease.** *William W.B. Chik, Ioan Liuba, Pasquale Santangeli, Francis E. Marchlinski*
- **Chapter 45: Epicardial Ablation.** *Wendy S. Tzou, Francis E. Marchlinski*
- **Chapter 46: Ventricular Fibrillation.** *Ashok J. Shah, Daniel Scherr, Xingpeng Liu, Nicolas Derval, Michel Haïssaguerre*
- **Chapter 47: Complications of Catheter Ablation and Their Management.** *Riccardo Cappato, Luigi De Ambroggi*

Section 2C: Surgical Ablation

- **Chapter 48: Ventricular Tachycardia with Hybrid Endocardial and Epicardial Approaches.** *Nimesh D. Desai, Michael A. Acker*
- **Chapter 49: Surgical Ablation for Atrial Fibrillation: Current Procedures and Clinical Outcomes**
 - **A: Surgical Ablation for Atrial Fibrillation: The Cox-Maze IV Procedure.** *Timo Weimar, Ralph J. Damiano, Jr.*
 - **B: Surgical Ablation for Atrial Fibrillation: The Cryosurgical Cox-Maze Procedure Using Argon-based Cryoprobes.** *Niv Ad*
 - **C: Surgical Ablation for Atrial Fibrillation: Left Atrial Pulmonary Vein Isolation, Ganglionic Plexi Ablation, and Excision of the Left Atrial Appendage.** *Randall K. Wolf, Sandra Burgess*

- **D: Surgical Ablation for Atrial Fibrillation: Extended Left Atrial Lesion Set.** *James R. Edgerton, Karen L. Roper, Stuart J. Head*
- **E: Surgical Ablation for Atrial Fibrillation: Ganglionic Ablation.** *Rishi Arora, Richard Lee*
- **F: Surgical Ablation for Atrial Fibrillation: Hybrid Atrial Fibrillation Procedures.** *Mark La Meir, Laurent Pison*
- **Chapter 50: Surgical Ablation of Inappropriate Sinus Tachycardia.** *Timo Weimar, Ralph J. Damiano, Jr.*
- **Chapter 51: Complications of Surgical Ablation.** *Peyman Benharash, Richard J. Shemin*

Section 2D: Device Implantation: Intraoperative, Surgical and Device Management

- **Chapter 52: Implantation Techniques for Permanent Pacemakers and Single- and Dual-Chamber Implantable Cardioverter-defibrillator Devices.** *Mark L. Blitzer, Mark H. Schoenfeld*
- **Chapter 53: Surgical Considerations in Device Implantation.** *Raj R. Kaushik, Sanjeev Saksena*
- **Chapter 54: Ventricular and Atrial Resynchronization Devices: Technology and Implantation Methods.** *Robert K. Altman, Jagmeet P. Singh*
- **Chapter 55: Organizing Best Practices in the Device Clinic.** *Melanie Turco Gura*
- **Chapter 56: Postoperative Management and Follow-up of Cardiac Rhythm Management Devices.** *Bharat K. Kantharia, Arti N. Shah*
- **Chapter 57: Optimization of Cardiac Resynchronization Therapy: Techniques and Patient Selection.** *Kevin P. Jackson, Brett D. Atwater, James P. Daubert*
- **Chapter 58: Radiologic Aspects of Cardiovascular Implantable Electronic Devices.** *John C. Evans, Karin Chia, Mintu P. Turakhia, Henry H. Hsia, Paul Zei, Marco V. Perez, Paul J. Wang, Amin Al-Ahmad*
- **Chapter 59: Device-based Monitoring for Arrhythmias.** *Paul D. Ziegler, Douglas A. Hettrick, Rangadham Nagarakanti, Sanjeev Saksena*
- **Chapter 60: Indications and Outcomes of Lead Extraction and Replacement Procedures for Pacemaker and Defibrillator Systems.** *Steven P. Kutalek*

SECTION 3: Clinical Indications and Evidence-based Outcomes Standards in Interventional Electrophysiology

- **Chapter 61: Catheter Ablation of AV Junction and Paroxysmal SVT.** *Sanjaya Gupta, Karl J. Ilg, Hakan Oral*
- **Chapter 62: Catheter Ablation of Atrial Flutter and Fibrillation.** *Jasbir S. Sra, Sanjeev Saksena*
- **Chapter 63: Ventricular Tachycardia and Ventricular Fibrillation.** *Indrajit Choudhuri, Masood Akhtar*
- **Chapter 64: Permanent Pacing: Clinical Indications and Evidence-based Outcomes Standards in Interventional Electrophysiology.** *Jaimie Manlucu, Bhavanesh Makanjee, Andrew D. Krahn, Raymond Yee*

- **Chapter 65: Clinical Indications and Evidence-based Outcomes Standards in Interventional Electrophysiology: Implantable Cardioverter-defibrillator Therapy.** *Bharat K. Kantharia, Arti N. Shah, Sanjeev Saksena*
- **Chapter 66: Indications for Surgical Ablation of Tachyarrhythmias**
 - **A: Atrial Fibrillation/Atrial Flutter.** *David C. Kress*
 - **B: Ventricular Tachycardia.** *Lindsey L. Saint, Jason O. Robertson, Ralph J. Damiano, Jr.*

SECTION 4: New Directions for Interventional Therapy

- **Chapter 67: Hybrid Device, Ablation and Drug Therapy in Atrial Fibrillation.** *Sanjeev Saksena*
- **Chapter 68: Staged Therapy Approaches in Atrial Fibrillation.** *Mario D. Gonzalez, Gerald V. Naccarelli*
- **Chapter 69: Hybrid Device, Ablation and Drug Therapy in Ventricular Tachyarrhythmias.** *Carlo Lavalle, Massimo Santini*