



Penn Medicine

Continuing Medical and
Interprofessional Education

IN-PERSON AND VIRTUAL

The Mark E. Josephson Twenty-Ninth Annual State-of-the-Art Arrhythmia Symposium

**Arrhythmia Diagnosis & Treatment Standards 2022
and Leonard N. Horowitz, MD
Memorial Lecture**

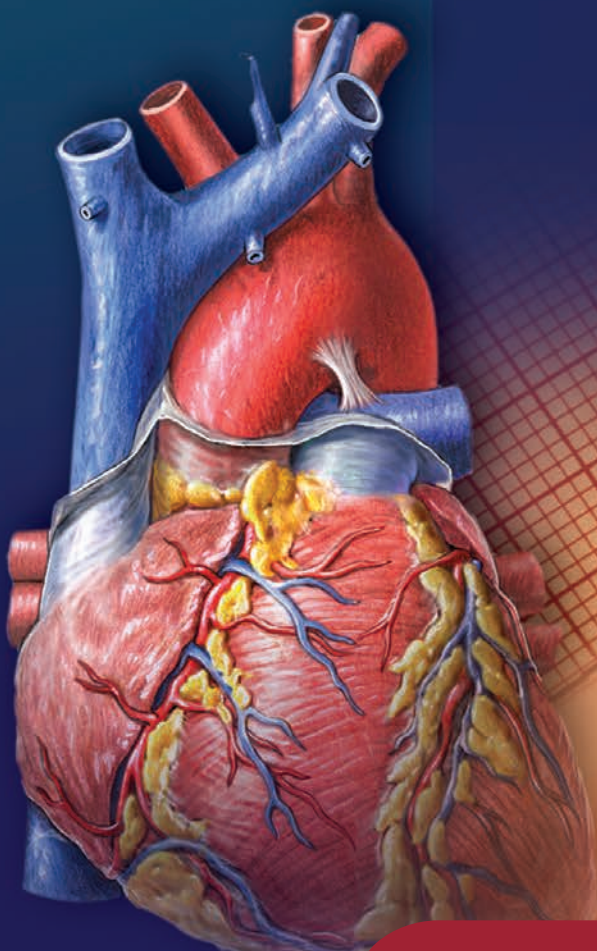
A CME/CNE-ACCREDITED SYMPOSIUM

Saturday, September 10, 2022

7:30 AM – 5:00 PM EST

In-Person Meeting Location

Hilton Philadelphia at Penn's Landing
201 South Christopher Columbus Blvd
Philadelphia, PA 19106



Co-sponsored by



**Heart
Rhythm
Society**
SM

<https://upenn.cloud-cme.com/arrhythmia2022>

PROGRAM OVERVIEW & TARGET AUDIENCE

This is the 29th year for the *State-of-the-Art Arrhythmia Symposium*. Using a combination of case presentations with audience participation, didactic presentations, and question and answer sessions, our goal is to educate the participants in state-of-the-art information on invasive and non-invasive electrophysiologic and electrocardiographic tools used in the current diagnosis, evaluation and treatment of cardiac rhythm disorders.

The program is taught by members of the faculty and staff from the University of Pennsylvania Health System, Department of Electrophysiology, in addition to invited speakers from other institutions. The course is structured to meet the educational needs of electrophysiologists, cardiologists, internists, nurses, and associated professionals with an interest in the care of patients with cardiac rhythm disorders. In addition to the morning session with lectures aimed at the entire audience, there are three breakout sessions in the afternoon aimed at 1) associated professionals 2) general cardiology and 3) an advanced electrophysiology session aimed at EP fellows, electrophysiologists, and EP lab staff.

The *State-of-the-Art Arrhythmia Symposium* is coupled each year with the Leonard N. Horowitz Memorial Lecture which is given by a leader in cardiology.

Learning Objectives

- Discuss the use and value of new techniques and technologies employed for complex EP device and ablation cases.
- Review and assess the differences in the various oral anticoagulants including appropriate use, dosing, risks, and contraindications.
- Explain ECG clues to detect patients at risk for sudden death.
- Describe the complexities regarding arrhythmia management in patients with congenital heart disease.
- Describe the appropriate evaluation and treatment for patients presenting with syncope.
- Apply into practice the newest information regarding evaluation and treatment of atrial arrhythmias including screening for episodes and ablation indications/techniques/endpoints.
- Identify the indications for cardiac resynchronization therapy and conduction system pacing, based on QRS morphology and duration, symptoms, functional class, ejection fraction, and type of heart disease.
- Determine when to recommend antiarrhythmic medications for patients with atrial fibrillation and flutter and how to select the most appropriate drug considering the patient's age and comorbidities.
- Describe the indications, contraindications, and complications associated with left atrial (LA) appendage occlusion and closure.
- Use the methods, techniques, associated tools, and equipment including emerging technologies to perform to catheter ablation of atrial fibrillation and flutter.
- Manage perioperative anticoagulation, including bridging when appropriate.
- Discuss the indications and methods to diagnose inherited arrhythmia syndromes and arrhythmogenic cardiomyopathies, including the roles and limitations of genetic testing and the importance and limitations of family screening.

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Hosting Department

The Mark E. Josephson Twenty-Ninth Annual State-of-the-Art Arrhythmia Symposium is hosted by the Department of Medicine, Division of Cardiology, Electrophysiology Section, University of Pennsylvania Health System.

Accreditation



JOINTLY ACCREDITED PROVIDER™
INTERPROFESSIONAL CONTINUING EDUCATION

In support of improving patient care, Penn Medicine is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

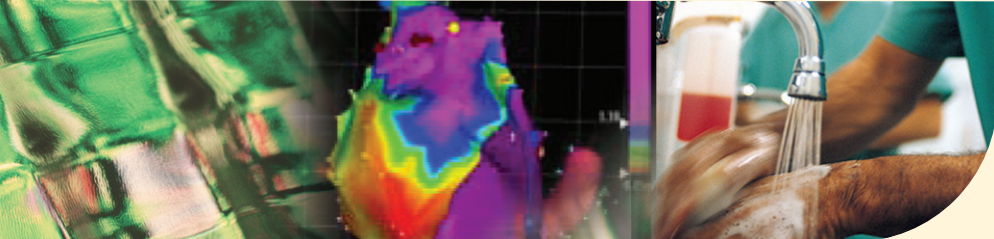
Designation of Credit

Physicians: Penn Medicine designates this live activity for a maximum of **7.75 AMA PRA Category 1 Credits™**. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Nurses: This program provides 7.75 NCPD hours.

Physician Assistants: Penn Medicine has been authorized by the American Academy of PAs (AAPA) to award AAPA Category 1 CME credit for activities planned in accordance with AAPA CME Criteria. This activity is designated for 7.75 AAPA Category 1 CME credits. PAs should only claim credit commensurate with the extent of their participation.

Certificates and Transcripts: After the conference has concluded, all participants will receive a followup email with a link and instructions on how to claim their credit. Once participants submit the request for credit, the earned credits will be available for viewing on your transcript or available for printing at <https://upenn.cloud-cme.com>. Please note that the individual certificate will not be mailed.



LIVE AND VIRTUAL PRESENTATIONS

The Mark E. Josephson Twenty-Ninth Annual State-of-the-Art Arrhythmia Symposium will be held Saturday, September 10, 2022 by in-person or live-stream (virtual) attendance. The live and virtual presentations will follow the scheduled agenda in real time (EDT).

TO ATTEND IN-PERSON:

Meeting Location

Hilton Philadelphia at Penn's Landing
201 S. Christopher Columbus Blvd
Philadelphia, PA 19106

TO ATTEND BY LIVE-STREAM (VIRTUAL):

Attendees who are registered to attend virtually will receive an email including the link to join the symposium 48 hours in advance. All virtual attendees will be required to sign into the meeting using your first name, last name and email address in order to be marked as attended, receive credit and view the recordings.

REGISTRATION FEES

IN-PERSON ATTENDANCE:

Please register online at <https://upenn.cloud-cme.com/arrhythmia2022>.

The fees to attend in-person are as follows: \$75 for physicians and industry attendees, \$50 for nurse practitioners, physician assistants and other healthcare professionals. There is no fee for residents, fellows, students and Penn Medicine employees, faculty and staff to attend.

All pre-registered, in-person attendees will receive access to the conference, attendee booklet, continental breakfast, lunch, breaks and the reception. Registration also includes access to view the presentations online for one year. Walk-ins are discouraged. Please be sure to register in advance.

LIVE-STREAM (VIRTUAL) ATTENDANCE:

Please register online at <https://upenn.cloud-cme.com/arrhythmia2022>.

The fee to attend virtually is \$60 for all attendees. Pre-registration is required to attend.

48 hours prior to the symposium, all pre-registered virtual attendees will receive an email that includes a link with instructions to sign-in and join the virtual conference, as well as the attendee booklet (downloadable PDF). Registration also includes access to view the presentations online for one year.

Need to Register by Mail?

Please note: mailed registrations can take up to 5-10 business days before they are received. We are experiencing longer delays receiving mail due to the COVID-19 pandemic. We encourage all attendees to register online. See the registration form for mailing instructions. All registrations will be confirmed by email as long as your registration is received no later than September 9, 2022.

Cancellation Policy

In order to process refunds for course withdrawals, cancellations must be received in writing by August 26, 2022 (subject to a service charge equivalent to 10% of the registration fee, but no less than \$25.00). No refunds will be issued thereafter.

The University reserves the right to cancel or postpone any course due to unforeseen circumstances. In the event of cancellation or postponement, the University will refund registration fees but is not responsible for related costs or expenses to participants, including cancellation fees assessed by hotels, airlines, and travel agencies.

Disclosures

Penn Medicine, Office of Continuing Medical and Interprofessional Education, adheres to the *ACCME Standards for Integrity and Independence in Accredited Continuing Education*. Faculty disclosure information will be made available in the conference materials and syllabus. Faculty members are also expected to disclose to participants any discussions of off-label and/or investigational uses of pharmaceutical products within their presentations.

Services for the Disabled If special arrangements are required for an individual with a disability to participate this meeting, please contact the Office of Continuing Medical and Interprofessional Education no later than August 26, 2022, at 215-898-6400.

Nondiscrimination Statement The University of Pennsylvania values diversity and seeks talented students, faculty, and staff from diverse backgrounds. The University of Pennsylvania does not discriminate on the basis of race, sex, sexual orientation, gender identity, religion, color, national or ethnic origin, age, disability, or status as a Vietnam Era Veteran or disabled veteran in the administration of educational policies, programs or activities; admissions policies; scholarship and loan awards; athletic, or other University administered programs or employment. Questions or complaints regarding this policy should be directed to Executive Director, Office of Affirmative Action and Equal Opportunity Programs, 3600 Chestnut Street, Sansom Place East Suite 228, Philadelphia PA 19104-6106 or 215-898-6993 (Voice) or 215-898-7803 (TDD). www.upenn.edu/affirm-action.

FACULTY

Symposium Director

Francis Marchlinski, MD

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Faculty

All faculty listed below are affiliated with the Perelman School of Medicine at the University of Pennsylvania, Philadelphia, PA

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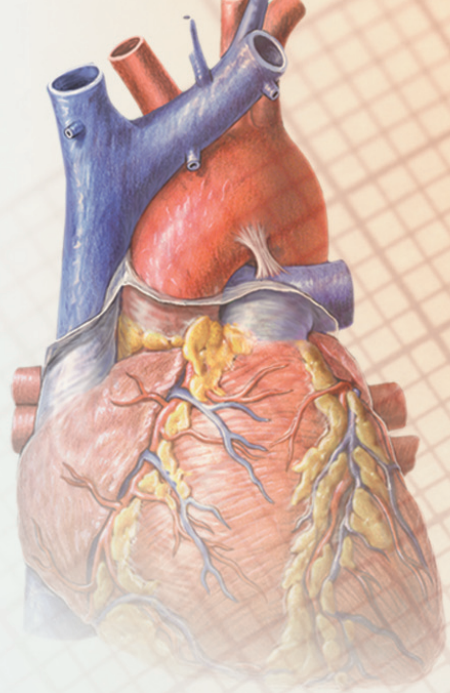
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University of Pennsylvania Health System

AGENDA

Saturday, September 10, 2022

7:00 – 7:30 AM

Coffee and Light Breakfast

7:30 – 11:45 AM

Morning Combined Group Session

Moderator: Francis Marchlinski, MD

7:30 – 7:35 AM

Welcome and Introduction

Francis Marchlinski, MD

7:35 – 8:05 AM

Josephson Keynote ECG Lecture

Atypical ECG Features During Atrial Fibrillation

- Distinguishing coarse Afib vs atrial flutter
- Sinus pauses – can we avoid pacing?
- Slowed atrial flutter that mimics sinus tachycardia
- Risk of sudden death in WPW
- Combined atrial fibrillation and normal sinus rhythm in same atria?

David Keane, MD, PhD

8:05 – 8:30 AM

Case Presentation/Panel Discussion:

Electrical Therapies to Prevent Recurrent VF

- Neuromodulation to prevent VF
- Ablation of VPD triggers
- Identification and ablation of unique epicardial VF substrates

Moderator: Francis Marchlinski, MD

Panelists: Timothy Markman, MD, Pasquale Santangeli, MD, PhD,

Matthew Hyman, MD, PhD, Gregory Supple, MD

8:30 – 9:30 AM

Updates in the Management of Atrial Fibrillation

(12 minute presentations)

Moderator: Francis Marchlinski, MD

- What is the relationship between AF and stroke?
Michael Riley, MD, PhD
- Afib in diastolic heart failure: Lowering threshold for early ablation
Francis Marchlinski, MD
- Pulsed field ablation: Promise or hype?
Pasquale Santangeli, MD, PhD
- Left atrial appendage occlusion: When, how, important considerations
Devi Nair, MD
- Monitoring to guide oral anticoagulation therapy in patients with stroke risk after Afib ablation – how much is enough?
David Frankel, MD

9:30 – 9:55 AM

Panel Discussion: Management of Afib (Case Presentations)

Moderator: Francis Marchlinski, MD

Panelists: Michael Riley, MD, PhD, Pasquale Santangeli, MD, PhD

David Keane, MD, PhD, David Frankel, MD, Devi Nair, MD

9:55 – 10:35 AM

Debate: Conduction System Pacing for All Patients Who Need Ventricular Pacing Support

Pro: Robert Schaller, DO (15 minutes)

Con: David Keane, MD, PhD (15 minutes)

Rebuttal: 5 minutes each

10:35 – 11:00 AM Break and Visit Exhibits

11:00 – 11:45 AM

Leonard N. Horowitz M.D. Memorial Lecture - Keynote

The Future of Arrhythmia/Heart Failure Management – Modulating Fibrosis

Jonathan Epstein, MD, PhD

11:45 AM – 12:45 PM Lunch and Visit Exhibits

Afternoon Breakout Sessions

12:45 PM - 2:45 PM

General Cardiology Afternoon Session – PART I

Moderator: David Callans, MD

12:45 – 1:10 PM

Approach to Risk Stratification in Patients with a Relative Who Has Died Suddenly

- Common familial disorders
- Role of genetic testing
- ECG clues
- Imaging clues

Saman Nazarian, MD, PhD

1:10 – 1:35 PM

Wearable to Implantable ECG Monitoring: Options, Recommendations, and Clinical Utility

- From Apple watch to implantable loop monitors
- How to meet the clinical needs of the patient?
- How to best program for VT/Afib detection?
- Examples of life saving/game changing ECG detection

David Lin, MD

1:35 – 2:00 PM

Peri-procedure Anticoagulation in AF patients

- Low-risk versus high-risk patients
- GI/general surgery/ EP procedures
- Bridging anticoagulation strategies
- Anticoagulation reversal agents – when to use?

Gregory Supple, MD

2:00 – 2:45 PM

Case Presentations/Panel Discussion: Primer on Appropriate Device Selection and Programming

- Considerations for implanting subcutaneous defibrillator
- When to provide atrial sensing? pacing?
- How to avoid unnecessary pacing?
- Avoiding inappropriate shocks for AF/nonsustained VT
- How to program for best arrhythmia detection?
- Caution when implanting

Moderator: Robert Schaller, DO

Panelists: Andrew Epstein, MD, Jeffrey Arkles, MD, John Bullinga, MD

Gustavo Guandalini, MD, Matthew Hyman, MD, PhD, David Callans, MD

2:45 – 3:00 PM Break and Visit Exhibits

3:00 – 5:00 PM

General Cardiology Afternoon Session - PART II

Moderator: David Lin, MD

3:00 – 3:20 PM

Timing of Ablation for Afib, PVC, VT: Important Considerations

- EAST-AFNET 4 Trial
- First line AF ablation therapy and prevention of persistent AF
- Predictors of PVC cardiomyopathy
- PAUSE-SCD Trial
- Cognitive decline: Association with Afib

Pasquale Santangeli, MD, PhD

3:20 – 3:40 PM

Syncope 2.0

- Clues to distinguish benign from malignant syncope
- Who should undergo EP evaluation?
- Unusual arrhythmic causes for syncope

Ramanan Kumareswaran, MD

3:40 – 4:00 PM

Radiation Therapy for Refractory Ventricular Tachycardia

- Patient selection
- Mechanism of action
- Early outcome data
- Short- and long-term risks

Jeffrey Arkles, MD

4:00 – 5:00 PM

Case Presentations/Panel Discussion:

Utilizing the ECG to Identify High Risk of Bad Outcomes and Guide Management

- WPW syndrome – high-risk versus low-risk characteristics
- Diagnosing Brugada Syndrome with LBBB
- Identifying phase 4 block AV block and need for urgent pacemaker
- Identifying origin of short coupled VPCs triggering VF
- Long QT – identifying highest risk patients

Moderator and Case Presentation: Sanjay Dixit, MD

Panelists: Matthew Hyman MD, PhD, David Lin, MD, Jeffrey Luebbert, MD, Gustavo Guandalini, MD, Rajat Deo, MD

12:45 – 3:00 PM

Advanced EP Afternoon Session – PART I

Moderators: Maully Shah, MBBS, Weeranun Bode, MD

12:45 – 1:10 PM

Unusual location for VTs: Recognition, Treatment and Expected Outcome

- RV in patients with ischemic VT
- LV apex in nonischemic VT/HCM
- Idiopathic outflow tract/Purkinje triggers in ischemic cardiomyopathy

Katie Walsh, MBChB

1:10 – 1:35 PM

Epicardial Access: Technical Considerations, Improving Safety and Overcome Challenges

- Anterior Versus Inferior Approaches: Pros and cons
- Insufflating CO2 into the pericardium through distal CS venous puncture
- Anatomic Challenges: Obesity, hepatomegaly, pericardial adhesions

Pasquale Santangeli, MD, PhD

1:35 – 2:00 PM

3D Echo and Intracardiac ECHO Imaging from the LA and LV

- Details provided with directed local imaging
- Clinical role of advanced imaging
- Incremental cost/complexity versus benefit – how to balance?

Fermin Garcia, MD

2:00 – 2:45 PM

Case Presentations and Panel Discussion: Update on Arrhythmia Syndromes in Patients with Common Forms of Congenital/Developmental Heart Disease

- Tetralogy of Fallot
- Ebstein's anomaly
- Non-compaction cardiomyopathy
- Atrial arrhythmias associated with anomalous pulmonary venous drainage
- ASDs – should PVs be isolated before closure?

Moderators and Case Presentations: Maully Shah, MBBS

Panelists: Pasquale Santangeli, MD, PhD, Katie Walsh, MBChB, David Frankel, MD, Matthew Hyman MD, PhD, Weeranun Bode, MD

2:45 – 3:00 PM Break and Visit Exhibits

3:00 – 5:00 PM

Advanced EP Afternoon Session – PART II

Moderator: Francis Marchlinski

3:00 – 3:25 PM

Update on Papillary Muscle VPD/VT Ablation

- ECG characteristics
- Mapping tips for localizing
- Common sites of origin
- Tricks for initiation and mapping
- Stabilizing the catheter

Gregory Supple, MD

3:25 – 4:30 PM

Rapid Fire Technology/Technique/Science Updates (12 minute presentations)

- Ligament of marshall venous alcohol injection to facilitate block in MA line
Fermin Garcia, MD
- Role of intramyocardial fat in arrhythmogenesis
Saman Nazarian, MD, PhD
- Mechanism of arrhythmia control with radioablation
Cory Tschabrunn, PhD
- Advanced mapping tools
Pasquale Santangeli, MD, PhD
- Advanced ablation tools
Gregory Supple, MD

4:30 – 5:00 PM

Panel Discussion: Q and A and Next Steps in Electrophysiology – Unanswered Questions

Moderator: Francis Marchlinski, MD

Panelists: Fermin Garcia, MD, Saman Nazarian, MD, PhD, Cory Tschabrunn, PhD

Gregory Supple, MD, Pasquale Santangeli, MD, PhD

12:45 – 2:45 PM

Associated Professionals Afternoon Breakout Session – PART I

Moderator: Kirstan Clay-Weinfeld, CRNP

12:45 – 1:15 PM

What's New in Cardiac Devices: Indications for Use, When to Avoid, How to Optimize?

- Leadless pacing systems
- Left bundle area pacing
- ECG assessment and appropriate device interrogation to confirm optimal function
- Programming to minimize shocks and avoid under-detection of VT

Christian Yacono, PA-C

1:15 – 1:45 PM

Antiarrhythmic Drug Therapy Update

- Role of flecainide in patients with reversible tachycardia cardiomyopathy
- Antiarrhythmic drug choice in post AF ablation patient with severe kidney or liver or significant ventricular disease
- How to index drug proarrhythmic risk
- How to best measure the QT interval

Carly Kindbom, PA-C

1:45 – 2:45 PM

Panel Discussion: Case Presentations That Identify Common Mistakes to Avoid Before and After Ablation Procedures and Provide a “Cookbook” Approach to Urgent Management of Complications

- Afib and anticoagulation in VT patients
- Critical information from prior surgery/ablation
- Evaluating hypotension
- How to decide whether repeated shocks are therapeutic or unnecessary discomfort?

Moderator: Kirstan Clay-Weinfeld, CRNP

Panelists: Trevor Bonney, PA-C, Tracey Munson, PA-C, Monica Pammer, PA-C

Alanna Miller, CRNP

2:45 – 3:00 PM Break and Visit Exhibits

3:00 – 5:00 PM

Associated Professionals Afternoon Breakout Session – PART II

Moderator: Kristine Conn, RN

3:00 – 3:30 PM

Remote Monitoring: Lessons Learned and Challenges

- Demonstration of value
- Best practices to handle alerts
- How best to program implantable devices for atrial and ventricular arrhythmia detection
- Incorporating data from “wearables” and basic pulse assessment in managing AF

Erica Zado, PA-C

3:30 – 4:00 PM

Important Information Before Taking Patient to EP Lab for VT ablation

- 12 lead ECG VT morphology
- Identifying arrhythmia triggering events – VF triggers
- Substrate evaluation and incorporating MR imaging results into mapping system
- Importance of device electrograms
- Evidence needed (clues) to determine how well procedure will be tolerated
- What to do with drug therapy – amiodarone?

Robert Hipp, PA-C, MS, MBA

4:00 – 5:00 PM

Rapid Fire Cases – ECGs and Telemetry Strips with Critical Don't Miss Diagnoses – Case Presentation and Audience Response

- Hyperkalemia
- Brugada syndrome
- RBBB with acute anterior MI
- Occult coronary spasm
- J Wave syndrome

Moderator: Erica Zado, PA-C

Panelists: Caroline Scherer, PA-C, Andrea Schell, PA-C, Nicholas Guarino, PA-C

Tara Parham, CRNP

5:00 PM

Thank you and Farewell

Francis Marchlinski, MD

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Questions? Contact us at:

pennmcme@penndmedicine.upenn.edu • Phone: 215-898-6400 or 215-898-8005

Please note we are unable to accept faxed registration forms.

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Name (First) (Last)

Academic Degree

Medical Specialty

Affiliation (Hospital, Office, or Company)

Address (☐ affiliation ☐ home)

City State Zip

Phone Fax

E-mail

REGISTRATION FEES

(pre-payment is required to be officially registered)

IN-PERSON ATTENDANCE:

- ☐ Physicians and industry employees – \$75
- ☐ Nurse practitioners, nurses, pharmacists, physician assistants, researchers and other healthcare professionals – \$50
- ☐ There is no fee for residents, fellows, students and Penn Medicine employees, faculty and staff to attend.

LIVE-STREAM (VIRTUAL) ATTENDANCE:

- ☐ \$60 for all virtual attendees. Registration is required to attend.

PAYMENT METHOD

- If you are paying by check or credit card, please register online at
<https://upenn.cloud-cme.com/arrhythmia2022>
- If you are paying by check, you may mail your completed registration form and check made payable to The Trustees of the University of Pennsylvania/CME to:
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Academic Programs, Penn Medicine, JMEC, SPE, 6th floor
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Philadelphia, PA 19104-5162
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