7:30 Breakfast
7:50 Introduction to the Retreat  Paul Wang, MD, Sanjiv Narayan, MD PhD

**Arrhythmia Mechanisms, Genetics**
Moderator: Glenn Fishman, MD, Fred Kusumoto, MD
8:00 Purkinje Cells and Arrhythmia Mechanisms – Glenn I. Fishman, MD
8:06 Biologic Markers and SCD – Christine Albert, MD, MPH
8:12 Genetics of Atrial Fibrillation – Patrick Ellinor, MD, PhD
8:18 Inherited channelopathy and cardiomyopathy overlap syndromes – Marco Perez, MD
8:24 Natriuretic peptide receptors as novel targets for sinoatrial node disease and atrial fibrillation: insight from pre-clinical models – Robert Rose, PhD
8:30 Discussion

**New Therapies, Sudden Cardiac Death**
Moderators: Heather Ross, DNP, PhD and Rahul Doshi, MD
8:44 Solving Complex Arrhythmogenesis with Machine Learning – Nicholas Peters, MD, PhD
8:50 Modeling Arrhythmias: An update – Natalia Trayanova, PhD
8:56 Optogenetics for Arrhythmia Diagnosis and Control – Lior Gepstein, MD, PhD
9:02 Use of biocompatible material-embedded carbon nanotubes to help re-circuit electrophysiological substrates in the beating heart – Suraj Kapa, MD
9:08 Sudden Death in Athletes – Mark Link, MD
9:14 Sudden Death in ARVD – Hari Tandri, MD
9:20 Discussion

**Future of Arrhythmia Therapy**
Moderators: Jodie Hurwitz, MD, Mark Estes, MD,
9:34 Catheter Ablation in Patients with Heart Failure – David Callans, MD
9:40 New Lead Designs and Leadless Pacemaker – Litsa Lambrakos, MD
9:46 Physiological pacing: is the His bundle the optimal target? – Daniel Lustgarten, MD
9:52 Pacing, Neuromodulation, and Sensors for Heart Failure – Jagmeet P. Singh, MD, DPhil
9:58 Subcutaneous nerve stimulation to control cardiac arrhythmia – Peng-Sheng Chen, MD
10:04 Harnessing Autonomics for Arrhythmia Control - Olujimi Ajijola MD, PhD
10:10 Optical Mapping of Human Atrial Fibrillation – Implications for Therapy – Vadim Fedorov, PhD
10:16 Paradigms for the Ablation of Persistent Atrial Fibrillation- Atul Verma, MD
10:22 Ablation in Patients with Adult Congenital Heart Disease – Mohan Viswanathan, MD
10:28 Atrial Fibrillation and Cognitive Impairment - Jared Bunch, MD
10:34 Candidate Therapeutics from Genomic Data– Mina Chung, MD
10:40 Gene Therapy for Arrhythmia Control - J. Kevin Donahue, MD
10:46 Discussion
11:00 Break

**Device Therapy**
Moderator: Niraj Varma, MD
11:12 Advances in AEDs and Wearable Defibrillators – Ulrika Birgersdotter-Green, MD
11:18 Advances in ICDs – Samir Saba, MD
11:24 Antiarrhythmic Therapy – Peter Kowey, MD
11:30 Low Energy Multi-Stage Therapy of AF – Igor Efimov, PhD
11:36 CIED Management of the Future – Bruce L. Wilkoff, MD
11:42 Discussion
12:00 Lunch
12:20 Panel Discussion: How to innovate – Uday Kumar, MD, Paul J. Wang, MD

**Ventricular Arrhythmias, Advances in Mapping and Imaging**
Moderators: Mauricio I. Scanavacca, MD, PhD
1:00 Intramural Needle Ablation for Ventricular Tachycardia – William Stevenson, MD
1:06 Advances in Mapping Systems – Moussa Mansour, MD
1:12 Advances in Imaging for Ablation – Saman Nazarian, MD, PhD
1:18 Antithrombotic Therapy - Michael Ezekowitz, MD, PhD
1:24 Discussion
1:42 Speed Dating and New Concepts. Moderator: Todd Cohen, MD

**Mechanisms, Substrate, and Risk Modification of Atrial Arrhythmias**
Moderator: Nitish Badhwar, MD, Steven Markowitz, MD
2:10 Left Atrial Appendage Occlusion Devices – Shephal Doshi, MD
2:16 Atrial Appendage: Physiology and Electrophysiology - Nitish Badhwar, MD
2:22 Lessons Learned from Clinical Trials and Registries of Atrial Fibrillation Ablation – Riccardo Cappato, MD
2:28 Advances in Ablation of Atrial Fibrillation - Pierre Jais, MD
2:34 Myocardial Fiber Disorganization and VT/VF after MI – Jose Jalife, MD
2:40 Artificial Intelligence Applications in Electrophysiology-Mintu Turakhia, MD, MAS
2:46 Discussion
3:08 Break
3:18 Speed Dating and New Concepts Moderator: Ronald Berger, MD, PhD

**Advances in Mapping and Ablation (Part I)**
Moderator: Amin Al-Ahmad, MD, John D. Hummel, MD
3:44 New Insights into Mapping Arrhythmias- Sanjiv Narayan, MD, PhD
3:50 Atrial substrate property and non-PV triggers in catheter ablation of AF – Shih-Ann Chen, MD
3:56 Novel Imaging of Substrate in Atrial Fibrillation- Eugene Kholmovski, PhD
4:02 A Novel Expandable Lattice Electrode Ablation Catheter Rapidly Produces Wide Radiofrequency Lesions with Low Risk of Thrombus and Steam Pop– Hiroshi Nakagawa, MD, PhD
4:08 Nonthermal electroporation ablation- Kars Neven, MD
4:14 Applied Biophysics to Improve Radiofrequency Ablation - William Sauer, MD
4:20 Optimizing RF Ablation – Gregory Michaud, MD
4:26 Important Clinical Trial Results in 2017-2018 in Arrhythmia Therapy - Dhanunjaya R. Lakkireddy, MD
4:32 Break

**Advances in Mapping and Ablation (Part II)**
Moderators: Jared Bunch, MD, David Haines, MD
4:53 Laser and Ultrasound Ablation of Atrial Fibrillation – Jacob Koruth, MD
4:59 Balloon Cryoablation of Atrial Fibrillation – Wilber Su, MD
5:05 New Balloon Ablation Technologies -Amin Al-Ahmad, MD
5:11 EP-guided Noninvasive Cardiac Radioablation (ENCORE) - Phillip S. Cuculich, MD
5:17 Noninvasive Ablation – Paul C Zei, MD, PhD
5:23 Surgical Ablation Technologies 2019 – Ralph Damiano, MD
5:29 Tools for Surgical Ablation of Atrial Fibrillation: Lessons from the Experimental Lab – Anson M. Lee, MD
5:35 Hybrid Surgical-Catheter Ablation – Mark La Meir, MD, PhD
5:41 Discussion
6:03 Adjourn Reception