CONFERENCE PROGRAM

WEDNESDAY, 19 APRIL 2017

1530-1830  Pre-Conference Tutorial
Dr. Galen Wagner’s Memorial-50 Years of ECG Research and Mentoring
Chair: David Strauss, Food & Drug Administration, Silver Spring, Maryland, USA
Co-Chair: Staff Warren, Chesapeake Cardiac Care, Annapolis, Maryland, USA
1530-1545 Chair: Overview
1545-1605 Staff Warren, Chesapeake Cardiac Care, Annapolis, Maryland, USA
ECG studies of a human model of ischemia during prolonged angioplasty – STAFF studies and Duke Cardiology fellow research mentoring experience
1605-1625 Peter Clemmensen, Nykoebing Falster Hospital, Nykoebing Falster, Falster, Denmark
Ischemia risk stratification with the ECG – visiting research fellow at Duke – Copenhagen research mentoring experience
1625-1645 Olle Pahlm, Lund University, Lund, Sweden
STAFF studies (ischemia) to MALT meeting (ECG and imaging) and beyond – Lund research mentoring experience

1645-1700 Break

1700-1720 Björn Wieslander, Karolinska Institute, Stockholm, Sweden
MRI as a "gold standard" for ECG quantification of infarction - Karolinska research mentoring experience
1720-1740 David Strauss, Food & Drug Administration, Silver Spring, Maryland, USA
Validating and applying the Selvester QRS scoring system - Duke medical student research mentoring experience
1740-1800 Robbert Zusterzeel, Food & Drug Administration, Silver Spring, Maryland, USA
Dyssynchrony and cardiac resynchronization therapy - Maastricht research mentoring experience
1800-1830 Audience comments about Dr. Wagner and discussion

1830-2000 Opening Reception, cash bar
0715-0815  Breakfast

0815-0830  Welcome & Opening Remarks
Jean-Philippe Couderc, University of Rochester Medical Center, Rochester, New York, USA

0830-1035  SESSION I: Selected Abstracts
Chair: David Strauss, Food & Drug Administration, Silver Spring, Maryland, USA
0830-0835  Chair
Overview
Salah Al-Zaiti, University of Pittsburgh School of Nursing, Pittsburgh, Pennsylvania, USA
A novel method to quantify the ischemia-induced, beat-to-beat repolarization lability in standard 12-Lead ECG signals in patients with chest pain
0850-0905  Discussion
Antonio Luiz Pinho Ribeiro, Federal University of Minas Gerais (UFMG), Brazil
Normal ranges of electrocardiogram measurements for the Brazilian population
0920-0935  Discussion
Maria Sejersten, Herlev University Hospital, Herlev, Denmark
Electrocardiographic scores of myocardium at risk underestimate the risk region compared to measurements by cardiac magnetic resonance in patients with STEMI
0950-1005  Discussion
Peter van Dam, Cardiac Arrhythmia Center, University of California, Los Angeles, California, USA
Characteristics and accuracy of a new Vector approach within CIPS to localize PVCs from the 12 lead ECG
1020-1035  Discussion

1035-1055  Break

1055-1230  SESSION II: ECG and Blood Pressure
Chair: Gari Clifford, Emory University and Georgia Institute of Technology, Atlanta, Georgia, USA
1055-1100  Chair
Overview
Matthew Stanley, Emory University, Atlanta, Georgia, USA
Early sepsis detection in critical care patients utilizing high-resolution blood pressure and ECG dynamics: A validation study
1115-1130  Discussion
Adriana Vest, Emory University, Atlanta, Georgia, USA
A validated cardiovascular dynamics toolbox for research
1130-1145  Discussion
Shamim Nemati, Emory University, Atlanta, Georgia, USA
Detecting heart failure using wearables: A pilot study
1215-1230  Discussion

1230-1700  Lunch and Afternoon Discussions

1700-1800  POSTER SESSION 1, cash bar, 1 hosted drink

PRESENTERS:
David Albert, AliveCor, Inc., Mountain View, California, USA
Recording unipolar ECG leads using one limb of the Wilson central terminal
Saeed Babaeizadeh, Philips Healthcare, Andover, Massachusetts, USA
Robust estimation of cardiac inter-beat intervals using photoplethysmography

Andrew Cairns, Ulster University, Computer Science Research Institute, Belfast, United Kingdom
Variability of human-annotations of 12-lead ECG features collected using a web system: Students vs. practitioners

Gari Clifford, Emory University and Georgia Institute of Technology, Atlanta, Georgia, USA
Combining multiple cardiac output estimators to reduce prediction error

Yama Fakhri, Rigshospitalet and Nykobing F Hospital, Copenhagen, Denmark
Electrocardiographic scores of severity and acuteness of myocardial ischemia predict myocardial salvage in patients with anterior ST-segment elevation myocardial infarction

Richard Gregg, Philips Healthcare, Andover, Massachusetts, USA
Can vectorcardiogram criteria unmask inferior Q-waves in Mason-Likar 12-lead ECG?

Daniel Guldenring, Ulster University, Belfast, United Kingdom
Limitations of the smartphone based single ECG-lead evaluation of STEMI

Meisam Hosseini, Food and Drug Administration, Silver Spring, Maryland, USA
Map of thorough QT studies with QTc and J-Tpeak biomarkers

Jonas Isaksen, Laboratory of Experimental Cardiology, University of Copenhagen, Denmark
QT-prolongation in type 1 diabetes is augmented during bradycardia

Jorgen Kanters, Laboratory of Experimental Cardiology, University of Copenhagen, Copenhagen, Denmark
Genome-wide association study of T-wave morphology

Michele Pelter, University of California San Francisco, San Francisco, California, USA
Visible but wide QRS complexes are associated with false asystole alarms

Erik A. Perez-Alday, Knight Cardiovascular Institute, Oregon Health and Science University, Portland, Oregon, USA
Torso mesh and body surface electrodes position reconstruction using a Kinect camera

Ramun Schmid, Schiller AG, Baar, Switzerland
A Kalman filter based adaptive impulse correlated filter

Ivo Strebel, CRIB, University Hospital Basel, University Basel, Basel, Switzerland
Diagnostic and prognostic value of the QRS-T-Angle, an ECG marker quantifying heterogeneity of depolarization and repolarization, in patients with suspected non-ST-elevation myocardial infarction

Adelita Tinoco, University of San Francisco, San Francisco, California, USA
ECG-derived Cheyne-Stokes respirations are associated with acute coronary syndrome, transient ischemia and elevated biomarkers

Bert Vandenberk, Department of Cardiovascular Sciences, KU Leuven, Department of Cardiology, University Hospitals Leuven, Belgium
Automated quantitative assessment of QRS fragmentation can improve non-invasive risk stratification

Jessica Zegre –Hemsey, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, USA
Pulse oximetry parameters to augment detection of myocardial ischemia - a feasibility study

1800-1900 Dinner

1900-2035 SESSION III: The JTpeak Initiative
Chair: Mathias Baumert, The University of Adelaide, School of Electrical Engineering, Adelaide, Australia

1900-1905 Chair
Overview

1905-2020 Wojciech Zareba, University of Rochester Medical Center, Rochester, New York, USA
JT interval: What does this interval mean?

1920-1935 Discussion

1935-1950 Fabio Badilini, AMPS LLC, Montichiari, Province of Brescia, Italy
JTpeak Initiative for ISCE 2017 Meeting
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Chair</th>
<th>Co-Chair</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950-2005</td>
<td>Discussion</td>
<td>W. Brian Chiu, Mortara Instrument, Inc., Milwaukee, Wisconsin, USA</td>
<td></td>
</tr>
<tr>
<td>2020-2035</td>
<td>Discussion</td>
<td>W. Brian Chiu, Mortara Instrument, Inc., Milwaukee, Wisconsin, USA</td>
<td></td>
</tr>
<tr>
<td>2035-2055</td>
<td>Break</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2055-2200</td>
<td><strong>SESSION IV: The JTpeak Initiative (PART 2)</strong></td>
<td>Mathias Baumert, The University of Adelaide, School of Electrical Engineering, Adelaide, Australia</td>
<td></td>
</tr>
<tr>
<td>2055-2100</td>
<td>Chair</td>
<td>Mathias Baumert, The University of Adelaide, School of Electrical Engineering, Adelaide, Australia</td>
<td></td>
</tr>
<tr>
<td>2100-2115</td>
<td>Chair Overview</td>
<td>Simon Chien, Advanced Algorithm Research Center, Philips Healthcare, Andover, Massachusetts, USA</td>
<td>Department of Electrical Engineering, California Institute of Technology, Pasadena, California, USA</td>
</tr>
<tr>
<td>2115-2130</td>
<td>Discussion</td>
<td>Simon Chien, Advanced Algorithm Research Center, Philips Healthcare, Andover, Massachusetts, USA</td>
<td>Department of Electrical Engineering, California Institute of Technology, Pasadena, California, USA</td>
</tr>
<tr>
<td>2130-2145</td>
<td>Chair</td>
<td>Simon Chien, Advanced Algorithm Research Center, Philips Healthcare, Andover, Massachusetts, USA</td>
<td>Department of Electrical Engineering, California Institute of Technology, Pasadena, California, USA</td>
</tr>
<tr>
<td>2145-2200</td>
<td>Discussion</td>
<td>Simon Chien, Advanced Algorithm Research Center, Philips Healthcare, Andover, Massachusetts, USA</td>
<td>Department of Electrical Engineering, California Institute of Technology, Pasadena, California, USA</td>
</tr>
<tr>
<td>2200-2300</td>
<td><strong>POSTER SESSION 1 – Continuing Discussion, cash bar</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0730-0830</td>
<td>Breakfast</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0830-1005</td>
<td><strong>SESSION V: Visualization of the Digital ECG</strong></td>
<td>Raymond Bond, Ulster University, Belfast, United Kingdom</td>
<td>Paul Kligfield, Weill Cornell Medical College, New York, New York, USA</td>
</tr>
<tr>
<td>0830-0835</td>
<td>Chair</td>
<td>Raymond Bond, Ulster University, Belfast, United Kingdom</td>
<td>Paul Kligfield, Weill Cornell Medical College, New York, New York, USA</td>
</tr>
<tr>
<td>0835-0850</td>
<td>Chair Overview</td>
<td>Roberto Sassi, The University of Milan, Computer Science Department, Milan, Italy</td>
<td>ECG-PDF and proposed tools: A framework to preserve and present the digital ECG – two birds, one stone?</td>
</tr>
<tr>
<td>0850-0905</td>
<td>Discussion</td>
<td>Andrew Cairns, Ulster University, Computer Science Research Institute, Belfast, United Kingdom</td>
<td>Interactive tablet PC-based visualization system for providing decision support in ECG interpretation</td>
</tr>
<tr>
<td>0905-0920</td>
<td>Chair</td>
<td>Andrew Cairns, Ulster University, Computer Science Research Institute, Belfast, United Kingdom</td>
<td>Interactive tablet PC-based visualization system for providing decision support in ECG interpretation</td>
</tr>
<tr>
<td>0920-0935</td>
<td>Discussion</td>
<td>Andrew Cairns, Ulster University, Computer Science Research Institute, Belfast, United Kingdom</td>
<td>Interactive tablet PC-based visualization system for providing decision support in ECG interpretation</td>
</tr>
<tr>
<td>0935-0950</td>
<td>Chair</td>
<td>Andrew Cairns, Ulster University, Computer Science Research Institute, Belfast, United Kingdom</td>
<td>Interactive tablet PC-based visualization system for providing decision support in ECG interpretation</td>
</tr>
<tr>
<td>0950-1005</td>
<td>Discussion</td>
<td>Andrew Cairns, Ulster University, Computer Science Research Institute, Belfast, United Kingdom</td>
<td>Interactive tablet PC-based visualization system for providing decision support in ECG interpretation</td>
</tr>
<tr>
<td>1005-1025</td>
<td>Break</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1025-1200</td>
<td><strong>SESSION VI: Global Measures of Repolarization Heterogeneity</strong></td>
<td>David Mortara, Mortara Instrument, Inc., Milwaukee, Wisconsin, USA</td>
<td></td>
</tr>
<tr>
<td>1200-1225</td>
<td>Chair</td>
<td>David Mortara, Mortara Instrument, Inc., Milwaukee, Wisconsin, USA</td>
<td></td>
</tr>
</tbody>
</table>
1025-1030 Chair
Overview

1030-1045 Robert Lux, University of Utah, Salt Lake City, Utah, USA
Basis and ECG measurement of global repolarization

1045-1100 Discussion

1100-1115 Larisa Tereshchenko, Oregon Health and Science University, Knight Cardiovascular Institute, Portland, Oregon, USA
Development of SAI QRST and combining all three measures together as GEH

1115-1130 Discussion

1130-1145 Konstantinos Rizas, Ludwig-Maximilians-University of Munich, Munich, Bavaria, Germany
Periodic repolarization dynamics and its clinical implications

1145-1200 Discussion

1200-1210 ISCE Membership Meeting

1210-1700 Lunch and Afternoon Discussion

1700-1800 POSTER SESSION 2, cash bar, 1 hosted drink

PRESENTERS:
Roger Abacherli, Lucerne University of Applied Sciences and Arts, Lucerne, Switzerland
Human verification by cross-correlation analysis of 12-lead ECG patterns: Ranking of the most reliable peripheral and chest leads

Salah Al-Zaiti, University of Pittsburgh, Pittsburgh, Pennsylvania, USA
Spatial indices of repolarization correlate with non-ST elevation myocardial ischemia in patients with chest pain

Adam Canning, Department of Cardiology, Altnagelvin Hospital, Derry/Londonderry, Western Health and Social Care Trust, Northern Ireland, United Kingdom
Variable diagnostic accuracy in reading ECGs in a nurse-led primary PCI pathway

Simon Chien, Philips Healthcare, Andover, Massachusetts, USA
The systematical approach to ventricular ECG forward modeling for exploring the electro-physiological properties of myocyte

Chathuri Daluwatte, Food and Drug Administration, Silver Spring, Maryland, USA
Relationship between ECG beat detector performance over short time intervals and correct detection of arrhythmic events

Dirk Feild, Philips Healthcare, Camarillo, California, USA
Stability of Automatic JTp Measurements

Reza Firoozabadi, Philips Healthcare, Thousand Oaks, California, USA
Efficient noise-tolerant estimation of heart rate variability using single-channel photoplethysmography

Kathleen Hickey, Columbia University School of Nursing, New York, New York, USA
ECG correlates of acute allograft rejection among heart transplant recipients in the NEW HEART Study

Ghalib Muhammad Waqas Janjua, Ulster University, Northern Ireland, United Kingdom
Independent measurement of high blood pressure changes in cuff-less blood pressure monitoring

Alan Kennedy, Ulster University, Belfast, United Kingdom
Bipolar chest leads revisited: The optimal placement of patch based ECG devices

Sunipa Saha, Boston Scientific, St. Paul, Minnesota, USA
Improved AF rhythm discrimination using QRS morphology

David Schreck, Atlantic Health System, Morristown, New Jersey, USA
Bayesian analysis of a new cardiac electrical biomarker

David Sprenkeler, University Medical Center Utrecht, Utrecht, The Netherlands
Diurnal dynamics of short-term variability of the QT-interval in a primary prevention ICD-population
Sophia Zhou, Philips Research, Cambridge, Massachusetts, USA

*Ensemble tree classifier to identify root causes of false alarms at hospital level*

John Wang, Philips Healthcare, Andover, Massachusetts, USA

*Advances in ECG-based cardiac ischemia monitoring - A review*

Bjorn Wieslander, Karolinska University Hospital and Karolinska Institutet, Stockholm, Sweden

*Pathological S-wave in lead I in left bundle branch block is associated with MRI scar and reduced left ventricular function*

Elena Zaklyazminskaya, Petrovsky Russian Research Centre of Surgery, Moscow, Russia

*Ambiguous phenotypic expression of some mutations in the cardiac Nav1.5 sodium channel*

**1800-1900**  
**Dinner**

**1900-2000**  
**KENICHI HARUMI PLENARY ADDRESS**  
Jonathan Steinberg, MD  
University of Rochester School of Medicine  
Short Hills, NJ

**2000-2010**  
**Break**

**2010-2215**  
**SESSION VII: Jos Willems Young Investigators Competition**  
Chair: Mary G. Carey, University of Rochester Medical Center, Rochester, New York, USA  
Co-Chair: Shen Luo, StarCare Medical, LLC, Madison, Wisconsin, USA  
2010-2015 Chair  
**Overview**

2015-2030 Karina Kuck, University of Copenhagen, Denmark  
*Abnormally low QRST angle is a new predictor for all-cause mortality in males*

2030-2045 Discussion  
2045-2100 Travis Moss, University of Virginia, Charlottesville, Virginia, USA  
*Continuous ECG monitoring of cardiorespiratory dynamics detects clinical deterioration in acute care patients with cardiovascular disease*

2100-2115 Discussion  
2115-2130 Golriz Sedaghat, Knight Cardiovascular Institute, Oregon Health and Science University, Portland, Oregon, USA  
*Correlation between the high-frequency content of the QRS on murine surface electrocardiogram and the sympathetic nerves density in left ventricle after myocardial infarction*

2130-2145 Discussion  
2145-2200 Amit Shah, Emory University, Atlanta, Georgia, USA  
*Development of an ECG-based score to assess myocardial scar*

2200-2215 Discussion  

**2215-2300**  
**POSTER SESSION 2 – Continuing Discussion, cash bar**

**SATURDAY, 22 APRIL 2017**

**0730-0830**  
**Breakfast**

**0830-0835**  
**SESSION VIII: The Role of the Electrocardiogram and In Silico Modeling for the Assessment of Proarrhythmic Risk of Drugs**  
Chair: Lars Johannesen, Food & Drug Administration, Silver Spring, Maryland, USA  
0835-0850 Chair
Overview
0850-0905  Gary Mirams, Centre for Mathematical Medicine & Biology, School of Mathematical Sciences, University of Nottingham, Nottingham, United Kingdom
Mechanistic in silico models for proarrhythmic risk prediction
0905-0920  Discussion
0920-0935  Jose Vicente, Food & Drug Administration, Silver Spring, Maryland, USA
Electrocardiographic biomarkers to confirm drug’s electrophysiological effects used for proarrhythmic risk prediction under CiPA
0935-0950  Discussion
0950-1005  Marek Malik, St. Paul’s Cardiac Electrophysiology, University of London and Imperial College, London, United Kingdom
QT interval segments and their relationship to heart rate
1005-1020  Discussion
1020-1035  Jay Mason, University of Utah, Salt Lake City, Utah, USA
Cardiologist’s point of View: Novel ECG biomarkers and in silico models for proarrhythmic risk prediction; are we ready?
1035-1050  Discussion
1050-1100  Break

SESSION IX: Clinical Applications of Wearable Devices
Chair: Suave Lobodzinski, California State University, Long Beach, California, USA
Co-Chair: Emanuela Locati, Hospital Niguarda Ca Granda, Milan, Italy
1100-1105  Chair
Overview
1105-1120  Emanuela Locati, Hospital Niguarda Ca Granda, Milan, Italy
ISHNE guidelines (2016) for ambulatory monitoring
1120-1135  Discussion
1135-1150  Roger Abächerli, Lucerne University of Applied Sciences and Arts, Lucerne, Switzerland
Wearable cardiac monitors – state of the art and the future outlook
1150-1205  Discussion
1205-1220  Suave Lobodzinski, California State University, Long Beach, California, USA
Limitations and pitfalls of wearable cardiac monitors and their comparison to Holter
1220-1235  Discussion
1235-1250  Juan Alcántara, Nuubo, Madrid, Spain
Wearable ECG devices for Afib detection. Clinical Monitoring strategies and results for 24 hours, 7 days, 21 days and 30 days
1250-1305  Discussion

1305-1600  Lunch and Afternoon Discussions

A TRIBUTE TO MIKE LAKS
Chair: Suave Lobodzinski, California State University, Long Beach, California, USA
Speakers: Helaina Kravitz
Suave Lobodzinski
Paul Kligfield
Barbara Drew
Peter van Dam
Roger Abächerli
1700-1905  **SESSION X: ECG Technologies – Debatable Issues**
Chair: Peter Macfarlane, University of Glasgow, Scotland, United Kingdom
Co-Chair: Peter Clemmensen, Nykoebing Falser Hospital, Denmark

**1700-1705  Chair**

**Overview**

**1705-1720  Automated ECG interpretation is beneficial even in major hospitals with experienced overreaders**
- **For:** Jay Mason, University of Utah, Salt Lake City, USA
- **Against:** Paul Kligfield, Weill Cornell Medical College, New York, New York, USA

**1720-1735  Discussion**

**1735-1750  24/7 monitoring out of hospital is not a viable concept when nursing staff switch off alarms in hospitals**
- **For:** Claire Sommargren, University of California, San Francisco, California, USA
- **Against:** Barbara Drew, University of California, San Francisco, California, USA

**1750-1805  Discussion**

**1805-1820  ECG imaging is a superb, clinically cost-effective diagnostic tool**
- **For:** Peter van Dam, Cardiac Arrhythmia Center, University of California, Los Angeles, California, USA
- **Against:** Roger Abächerli, Lucerne University of Applied Sciences and Arts, Lucerne, Switzerland

**1820-1835  Discussion**

**1835-1850  The public are being misled by single channel ECG recording devices**
- **For:** Morrison Hodges, Minneapolis Heart Institute Foundation, Plymouth, Minnesota, USA
- **Against:** David Albert, AliveCor, Inc., Mountain View, California, USA

**1850-1905  Discussion**

---

**1915  Dinner Banquet**
- Poster Awards
- JWYI Awards
- President’s Remarks
- Conference Chair’s Remarks

---

**SUNDAY, 23 APRIL 2017**

**0730-0900  Closing Breakfast**