International Society for Computerized Electrocardiology
42nd Annual Conference
King and Prince Beach and Golf Resort, St. Simons Island, Georgia, USA
Wednesday, April 19 - Sunday, April 23, 2017

Jean-Philippe Couderc, PhD
University of Rochester Medical Center
Conference Chair

David Strauss, MD, PhD
Food & Drug Administration
Conference Co-Chair

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, 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
Dysynchrony and cardiac resynchronization therapy - Maastricht research mentoring experience
1800-1830  Audience comments about Dr. Wagner and discussion

1830-2000  Opening Reception, cash bar, 1 hosted drink
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

0835-0850 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

0905-0920 Antonio Luiz Pinho Ribeiro, Federal University of Minas Gerais (UFMG), Brazil
Normal ranges of electrocardiogram measurements for the Brazilian population

0920-0935 Discussion

0935-0950 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

1005-1020 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

1100-1115 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

1130-1145 Adriana Vest, Emory University, Atlanta, Georgia, USA
A validated cardiovascular dynamics toolbox for research

1145-1200 Discussion

1200-1215 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-Tpeakc biomarkers

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

Jørgen 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 (Part 1)
Chair: Mathias Baumert, The University of Adelaide, School of Electrical Engineering, Adelaide, Australia

1900-1905 Chair
Overview

1905-1920 Wojciech Zareba, University of Rochester Medical Center, Rochester, New York, USA
JT Interval: What does this interval mean?

1920-1935 Discussion

1935-2050 Fabio Badilini, AMPS LLC, Montichiari, Province of Brescia, Italy
The JTpeak Initiative: Automated Results from BRAVO Algorithm
The J to T-peak interval as a biomarker in drug safety studies: A method of accuracy assessment applied to two algorithms.

The Algorithmic Performance of JTpeak for Drug Safety Clinical Trials

The 2017 ISCE “JTpeak” Initiative

Implementation of a computerized tool for long-term ECG analysis: Evidencing specific dynamic features associated with a history of cardiac events in the Long QT Syndrome

SESSION IV: The JTpeak Initiative (PART 2)
Chair: Mathias Baumert, The University of Adelaide, School of Electrical Engineering, Adelaide, Australia
Overview

The Algorithmic Performance of JTpeak for Drug Safety Clinical Trials

The 2017 ISCE “JTpeak” Initiative

SESSION V: Visualization of the Digital ECG
Chair: Raymond Bond, Ulster University, Belfast, United Kingdom
Co-Chair: Paul Kligfield, Weill Cornell Medical College, New York, New York, USA
Overview

ECG-PDF and proposed tools: A framework to preserve and present the digital ECG – two birds, one stone?

Coupling Interactive Computing and Decision Support to Create a Cognitive Assistant to Augment 12-lead ECG Interpretation

Implementation of a computerized tool for long-term ECG analysis: Evidencing specific dynamic features associated with a history of cardiac events in the Long QT Syndrome

SESSION VI: Global Measures of Repolarization Heterogeneity

Break
Chair: David Mortara, Mortara Instrument, Inc., Milwaukee, Wisconsin, USA

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 Abächerli, 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 Kück, 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

2215-2315 POSTER SESSION 2 – Continuing Discussion, cash bar

SATURDAY, 22 APRIL 2017

0730-0830 Breakfast

0830-1050 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
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<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>0835-0850</td>
<td>Chair</td>
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<td>0850-0905</td>
<td>Co-Chair: Jay Mason, University of Utah, Salt Lake City, Utah, USA</td>
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<td>0850-0905</td>
<td>Gary Mirams, Centre for Mathematical Medicine &amp; Biology, School of Mathematical Sciences, University of Nottingham, Nottingham, United Kingdom</td>
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<td><strong>Mechanistic in silico models for proarrhythmic risk prediction</strong></td>
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<td>0905-0920</td>
<td>Discussion</td>
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<td>0920-0935</td>
<td>Co-Chair: Jose Vicente, Food &amp; Drug Administration, Silver Spring, Maryland, USA</td>
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<td>0920-0935</td>
<td><strong>Electrocardiographic biomarkers to confirm drug’s electrophysiological effects used for proarrhythmic risk prediction under CiPA</strong></td>
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<td>0950-1005</td>
<td>Co-Chair: Marek Malik, St. Paul’s Cardiac Electrophysiology, University of London and Imperial College, London, United Kingdom</td>
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<td>0950-1005</td>
<td><strong>QT interval segments and their relationship to heart rate</strong></td>
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<td>1005-1020</td>
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<td>1020-1035</td>
<td>Co-Chair: Jay Mason, University of Utah, Salt Lake City, Utah, USA</td>
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<td>1020-1035</td>
<td><strong>Cardiologist’s point of View: Novel ECG biomarkers and in silico models for proarrhythmic risk prediction; are we ready?</strong></td>
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<td>1050-1100</td>
<td>Break</td>
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<td>1100-1105</td>
<td>SESION IX: Clinical Applications of Wearable Devices</td>
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<td>1100-1105</td>
<td>Chair: Suave Lobodzinski, California State University, Long Beach, California, USA</td>
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<td>1100-1105</td>
<td>Co-Chair: Emanuela Locati, Hospital Niguarda Ca Granda, Milan, Italy</td>
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<td>1105-1120</td>
<td>Chair: Emanuela Locati, Hospital Niguarda Ca Granda, Milan, Italy</td>
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<td>1105-1120</td>
<td><strong>ISHNE guidelines (2016) for ambulatory monitoring</strong></td>
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<td>1120-1135</td>
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<td>1135-1150</td>
<td>Roger Abächerli, Lucerne University of Applied Sciences and Arts, Lucerne, Switzerland</td>
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<td><strong>Wearable cardiac monitors – state of the art and the future outlook</strong></td>
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<td>Suave Lobodzinski, California State University, Long Beach, California, USA</td>
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<td>1205-1220</td>
<td><strong>Limitations and pitfalls of wearable cardiac monitors and their comparison to Holter</strong></td>
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<td>Juan Alcântara, Nuubo, Madrid, Spain</td>
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<td>1235-1250</td>
<td><strong>Wearable ECG devices for Afib detection. Clinical Monitoring strategies and results for 24 hours, 7 days, 21 days and 30 days</strong></td>
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<td>1305-1600</td>
<td>Lunch and Afternoon Discussions</td>
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<td>Chair: Suave Lobodzinski, California State University, Long Beach, California, USA</td>
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<td>Speakers: Suave Lobodzinski</td>
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<td>Paul Kligfield</td>
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<td>Barbara Drew</td>
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<td>Peter van Dam</td>
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SESSION X: ECG Technologies – Debatable Issues

Chair: Peter Macfarlane, University of Glasgow, Scotland, United Kingdom
Co-Chair: Peter Clemmensen, Nykoebing Falster Hospital, Falster, 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

1915-2200 Dinner Banquet
  - Poster Awards
  - JWYI Awards
  - President’s Remarks
  - Conference Chair’s Remarks

SUNDAY, 23 APRIL 2017

0730-0900 Closing Breakfast