COMPUTING IN CARDIOLOGY

September 6-9, 2015
Nice, France

Scientific Program

Monday, September 7, 2015, 08:45

M1: Rosanna Degani Young Investigator Finals

Room: A1

Chair(s): Pablo Laguna and Olaf Doessel

1-364 **Rate-Adapted Dynamic-Clamp of the Funny Current in Sinoatrial Pacemaker Cells**

Chiara Bartolucci*, Enrico Ravagli, Annalisa Bucchi, Mirko Baruscotti, Dario DiFrancesco, Stefano Severi

2-228 **Left Atrium MRI 4D-flow in Atrial Fibrillation: Association with LA Function**

Morgane Evin*, Fraser M Callaghan, Carine Defrance, Stuart M Grieve, Alain De Cesare, Philippe Cluzel, Alban Redheuil, Nadjia Kachenoura

3-318 **Extraction of Morphological QRS-based Biomarkers in Hypertrophic Cardiomyopathy for Risk Stratification using L1 Regularized Logistic Regression**

Aurore Lyon*, Ana Mincholé, Rina Ariga, Pablo Laguna, Stefan Neubauer, Hugh Watkins, Nando de Freitas, Blanca Rodríguez

4-187 **Three-Dimensional Segmentation and Quantification of the Anatomic Regurgitant Orifice in Mitral Regurgitation using 3D Ultrasound Images**

Miguel Sotaquira*, Mauro Pepi, Gloria Tamborini, Enrico Caiani

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S21: Blood Pressure Analysis

Room: A3

Chair(s): Eduardo Gil and Paolo Castiglioni

5-8 **Need for Re-validation of Automated Blood Pressure Devices for Use in Unstable Conditions**

Dingchang Zheng, Chengyu Liu*, John Amoore, Stephan Mieke, Alan Murray

6-11 **Beat-to-Beat Response Patterns of Spectral Sympathetic Estimators to the Cold Face Test and their Comparison to Those of the Orthostatic Stress Test**

Salvador Carrasco-Sosa, Alejandra Guillén-Mandujano*, Aldo R Mejía-Rodríguez

7-179 **Seismocardiograms Segmented Without ECG Return Valid Heart Rate Variability Indices**

Alexandre Laurin*, Kouhyar Tavakolian, Farzad Khosrow-Khavar, Andrew Blaber

8-260 **Heart Rate Estimation from Dual Pressure Sensors of a Dialysis Machine**

Mattias Holmer*, Frida Sandberg, Kristian Solem, Bo Olde, Leif Sörnmo

9-12 **Performance of the Low-Frequency Power of Pulse Pressure Variability as a Sympathetic Activity Measure During Supine, Controlled Breathing, Standing and Exercise**

Salvador Carrasco-Sosa, Alejandra Guillén-Mandujano*

10-383 **Pulse Transit Time Extraction from Seismocardiogram and its Relationship with Pulse Pressure**

Ajay Verma, Reza Fazel-Rezai, Kouhyar Tavakolian*

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S22: Atrial Fibrillation Classification

Room: A1

Chair(s): Frida Sandberg and Pietro Bonizzi

11-13 **Classification of Atrial Fibrillation Episodes by Means of Phase Variations of Time-Frequency Transforms**

Nuria Ortigosa*, Óscar Cano, Antonio Galbis, Carmen Fernández

12-247 **Adaptive Wavelets Applied to Automatic Local Activation Wave Detection in Fractionated Atrial Electrograms of Atrial Fibrillation**

Jorge Felix*, Raul Alcaraz, Jose J Rieta

13-250 **Study on the Trustability of Phase Mapping Methods to Represent Atrial Potentials in Atrial Fibrillation**

Jorge Felix*, Vincent Jacquemet, Raul Alcaraz, Jose J Rieta

14-173 **Unifying Automated Fractionated Atrial Electrograms Classification using Electroanatomical Mapping Systems in Persistent Atrial Fibrillation Studies**

Tiago P Almeida, Gavin S Chu, João L Salinet, Frederique J Vanheusden, Xin Li, Jiun H Tuan, Peter J Stafford, G André Ng, Fernando S Schlindwein*

15-176 **Combination of Frequency and Phase to Characterise the Spatiotemporal Behaviour of Cardiac Waves during Persistent Atrial Fibrillation in Humans**

Nawshin Dastagir*, Xin Li, Frederique J Vanheusden, Tiago P Almeida, João Salinet, Gavin S Chu, Peter J Stafford, G André Ng, Fernando S Schlindwein

16-153 **Recurrent High Dominant Frequency Spatial Patterns in Atrial Fibrillation**

Xin Li*, Gavin S Chu, Tiago P Almeida, Frederique J Vanheusden, Nawshin Dastagir, João L Salinet, Peter J Stafford, G André Ng, Fernando S Schlindwein

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S23: Cardiac Electrophysiology

Room: A4

Chair(s): Johannes Struijk and Alan Murray

17-412 **using Electromechanical Signals Recorded from the Body for Respiratory Phase Detection and Respiratory Time Estimation: A Comparative Study**

Nasim Alamdari, Kouhyar Tavakolian*, Reza Fazel-Rezai, Alireza Akhbardeh

18-208 **Electrical Dyssynchrony on Noninvasive Electrocardiographic Mapping correlates with SAI QRST on surface ECG**

Larisa Tereshchenko*, Elyar Ghafoori, Muammar Kabir, Markus Kowalsky

19-156 **A Computational Model of Open-Irrigated Electrode for Endocardial RF Catheter Ablation**

Ana González-Suárez*, Enrique Berjano, Jose M Guerra, Luca Gerardo-Giorda

20-83 **An Additional Marker of ventricular Dyssynchrony**

Pavel Jurak*, Josef Halamek, Filip Plesinger, Tereza Reichlova, Jolana Lipoldova, Miroslav Novak, Katerina Jurakova, Pavel Leinveber

21-249 **Preliminary Comparison Study of Two Electro-Mechanical Cardiopulmonary Resuscitation Devices**

Alejandro Mendoza Garcia*, Stefan Eichhorn, Annemarie Stroh, Marcin Polski, Alois Knoll

22-312 **Analysis of the Spectrum of Cardiac Signals during Partially Correlated Spatiotemporal Dynamics: A Simulation Approach**

Ferney A Beltrán-Molina, Lizet C Salgado, Luis J Martinez, Jesús Requena-Carrión*

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S24: Cardiac Chamber Quantification

Room: A2

Chair(s): Victor Mor-Avi and Trygve Eftestøl

23-201 **Right Ventricular Diastolic Function Evaluation in Magnetic Resonance Imaging**

Nadjia Kachenoura*, Emilie Bollache, Alban Redheuil, Stéphanie Clément-Guinaudeau, Ludivine Perdrix, Benoit Diebold, Magalie Ladouceur, Elie Mousseaux

24-217 **Automated Detection of Left Atrium Boundary in Intra-cardiac Echocardiography During Atrial Fibrillation Ablation**

Rachele Angeletti*, Corrado Tomasi, Matteo Zimmitti, Cristiana Corsi

25-220 **Quantification of Myocardial Viability in Late-Gadolinium Enhancement Cardiac MRI**

M Chiara Carminati, Cinzia Boniotti, Mauro Pepi, Enrico G Caiani*

26-50 **Model-based 3-D LV Shape Recovery in Biplane X-Ray Angiography: A-Priori Information Learned from CT**

Roland Swoboda*, Josef Scharinger, Clemens Steinwender

27-282 **Evaluation of Different Statistical Shape Models for Segmentation of the Left Ventricular Endocardium from Magnetic Resonance Images**

Concetta Piazzese*, M Chiara Carminati, Andrea Colombo, Rolf Krause, Mark Potse, Lynn Weinert, Gloria Tamborini, Mauro Pepi, Roberto M Lang, Enrico G Caiani

28-367 **A Nearly-Automated Approach for Left Ventricular Segmentation using Feature Asymmetry from Real-time 3D Echocardiography**

Claudio Fabbri*, Simone Pertutti, Cristiana Corsi

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S31: Wearable Technology

Room: A2

Chair(s): Alan Kennedy and Eliasz Kantoch

29-175 **BAN-Based Health Telemonitoring System for In-Home Care**

Eliasz Kańtoch*

30-15 **A Multi-Channel Electrode-Tissue Impedance Detection Approach for Motion Artifact Suppression in Ambulatory ECG**

Huanqian Zhang*, XiaoWei Du, Shulin Zhang, Qinghui Jin, Ruojie Tao, Qing Li, Jian Yang, Jianlong Zhao

31-254 **A Wearable Device for Physical and Emotional Health Monitoring**

Srinivasan Murali*, Francisco Rincon, David Atienza

32-372 **Wearable Monitoring: A Project for the Unobtrusive Investigation of Sleep Physiology Aboard the International Space Station**

Marco Di Rienzo, Emanuele Vaini, Prospero Lombardi*

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S32: Fetal Signal Modelling and Analysis

Room: A5

Chair(s): Julien Oster and Roberto Sassi

33-178 **A Qualitative Dynamical Model for Cardiotocography Simulation**

Alfredo Illanes, Michel Haritopoulos*, Felipe Robles, Francisco Guerra

34-199 **Fetal Heart Rate Complexity Measures to Detect Hypoxia**

Óscar Barquero-Pérez*, Rebeca Goya-Esteban, Antonio Caamaño, Carlos Martín-Caballero, José Luis Rojo-Álvarez

35-394 **Mutual Information Estimates of CTG Synchronization**

Philip A Warrick*, Emily F Hamilton

36-376 **Fetal ECG Extraction using Hybrid BSS Techniques**

Luis Omar Sarmiento Alvarez, Alberto Gonzalez Salvador, Jose Millet Roig*

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S33: Repolarization and Potassium Channels

Room: A4

Chair(s): Olivier Meste and Ronald Wilders

37-77 **Quantification of the Ionic Current Contributions to Alterations in the Action Potential Repolarization by means of Piecewise-Linear Approximation**

Michelangelo Paci*, Jari Hyttinen, Stefano Severi

38-81 **Drug Toxicity on Cardiac Pacemaking: a Multi-Scale Modelling Study**

Xiangyun Bai*, Henggui Zhang, Kuanquan Wang, Yongfeng Yuan, Qince Li, Na Zhao

39-54 **Diabetes Affects the Temporal Dynamics of the Repolarization Properties of Cardiomyocytes**

Olivier Meste*, Marianna Meo, Sergio Signore, Marcello Rota

40-291 **Real-Time Simulation of IK1 in Cardiomyocytes Derived from Human Induced Pluripotent Stem Cells**

Rosalie ME Meijer van Putten, Isabella Mengarelli, Kaomei Guan, Jan G Zegers, Antoni CG van Ginneken, Arie O Verkerk, Ronald Wilders*

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S34: Ambulatory ECG

Room: A3

Chair(s): Laura Burattini and Luca Mainardi

41-255 **Real-Time Probabilistic Heart-Beat Classification and Correction for Embedded Systems**

Grégoire Surrel*, Francisco Rincón, Srinivasan Murali, David Atienza

42-411 **Evaluation of Short-term Individual Variability on the Contribution of Spectral-based Predictors to Cardiac Arrest Neurological Performance and Survival Outcomes**

Conrado J Calvo*, David Filgueiras-Rama, Santiago Jimenez-Serrano, Francisco Castells, Francisco J Chorro, José Millet

43-401 **On the Derivation of the Spatial QRS-T Angle from Mason–Likar Leads I, II, V2 and V5**

Daniel Guldenring*, Dewar Finlay, Raymond Bond, Alan Kennedy, James McLaughlin

44-100 **ECG-Derived Respiration for Ambulatory Monitoring**

Carolina Varon*, Sabine Van Huffel

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S35: New Trends in Cardiac Imaging

Room: A1

Chair(s): Claudio Lamberti and Nadjia Kacheneura

45-301 **Inter-study Repeatability of Left Ventricular Strain Measurement using Feature Tracking on MRI Cine Images**

Jérôme Lamy*, Gilles Soulat, Alban Redheuil, Morgane Evin, Elie Mousseaux, Nadjia Kachenoura

46-251 **Speckle Tracking Analysis for Early Detection of Cardiotoxicity in Breast Cancer Patients**

Cinzia Lorenzini*, Claudio Lamberti, Michele Aquilina

47-216 **Comparison of Novel Image Fusion Algorithms for Echocardiography and Cardiac Computed Tomography**

Tim Nordenfur*, Aleksandar Babic, Ivana Bulatovic, Anders Giesecke, Jonaz Ripsweden, Eigil Samset, Reidar Winter, Matilda Larsson

48-120 **Spectral Analysis of Electroanatomical Maps for Spatial Bandwidth Estimation as Support to Ablation**

Margarita Sanromán-Junquera*, Inmaculada Mora-Jiménez, Arcadio García-Alberola, José Luis Rojo-Álvarez

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S41: Databases and Web Technology

Room: A5

Chair(s): Raymond Bond and Catherine Chronaki

49-302 **Cardiology eHealth Messages Routing Policies Management Driven by Dynamic Bayesian Networks**

Nachoua Guizani*, Jocelyne Fayn

50-264 **Designing Reliable Cohorts of Cardiac Patients Across MIMIC II and eICU**

Catherine* Chronaki, Abdullah Chalin, Roger Mark

51-170 **Web Application for Data Exchange and Follow-up in Heart Rate Turbulence**

Cristina Soguero-Ruiz, Alfonso Sánchez-Caro, Inmaculada Mora-Jiménez, Luis Lechuga-Suárez, Arcadi García-Alberola, José Luis Rojo-Álvarez*

52-246 **A Context-Aware Approach for Wellness Monitoring of Cardiac Patient using Social Network Service Expansion**

Abdur Rahim Mohammad Forkan*, Ibrahim Khalil

53-140 **Interactive Progressive-based Approach to Aid the Human Interpretation of the 12-lead Electrocardiogram**

Andrew Cairns, Raymond Bond*, Dewar Finlay, Cathal Breen, Daniel Guldenring, Robert Gaffney, Patrick Henn, Aaron Peace

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S42: ECG Interval Analysis

Room: A2

Chair(s): Rute Almeida and Jean-Marc Vesin

54-287 **Dynamic Coupling Between Ventricular Repolarization Duration and RR-Interval Phase-Rectification Analysis in Chagas Disease**

Olivassé Nasario-Junior, Paulo Roberto Benchimol-Barbosa, Roberto Coury Pedrosa, Jurandir Nadal*

55-23 **Optimizing the Short- and Long Term Regression for QRS Detection in Presence of Missing Data**

Piotr Augustyniak*

56-211 **Robustness of the Segmented-beat Modulation Method to Noise**

Angela Agostinelli, Corrado Giuliani, Sandro Fioretti, Francesco Di Nardo, Laura Burattini*

57-184 **Spectral Analysis of QT Interval Variability and Muscle Sympathetic Nerve Activity in Normal Subjects During Head-Up Tilt**

Fatima El-Hamad, Elisabeth Lambert, Mathias Baumert*

58-114 **A Noise Robust QRS Delineation Method Based on Path Simplification**

Tomás Teijeiro*, Paulo Félix, Jesús Presedo

59-86 **T-P Interval Estimation in Case of Overlapping Waves**

Hervé Rix*, Aline Cabasson, Michal Kania, Olivier Meste

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S43: ECG Imaging

Room: A4

Chair(s): Linwei Wang and Dana Brooks

60-373 **Quantitative Comparison of Two Cardiac Electrical Imaging Methods to Localize Pacing Sites**

Jaume Coll-Font*, Petr Stovicek, Dana H Brooks, Peter M van Dam

61-71 **In-vivo Evaluation of Reduced-Lead-Systems in Noninvasive Reconstruction and Localization of Cardiac Electrical Activity**

Matthijs Cluitmans*, Joël Karel, Pietro Bonizzi, Monique de Jong, Paul Volders, Ralf Peeters, Ronald Westra

62-141 **Local Conduction Velocity Mapping for Electrocardiographic Imaging**

Corentin Dallet*, Mark Potse, Laura Bear, Josselin Duchateau, Nejib Zemzemi, Valentin Meillet, Yves Coudière, Rémi Dubois

63-303 **Inverse Localization of Ischemia in a 3D Realistic Geometry: A Level Set Approach**

Carlos E Chávez, Felipe Alonso-Atienza*, Nejib Zemzemi, Yves Cudière, Diego Álvarez

64-382 **Effect of the Torso Conductivity Heterogeneities on the ECGI Inverse Problem Solution**

Nejib Zemzemi*, Laura Bear, Mark Potse, Corentin Dallet, Yves Coudière, Remi Dubois, Josselin Duchateau

65-271 **Comparison of Temporal Dimensionality Reduction Methods for Constrained Inverse in Cardiac Electrical Imaging**

Jaume Coll-Font*, Danila Potyagaylo, Walther Schulze, Olaf Doessel, Dana H Brooks

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S44: Blood Pressure Dynamics

Room: A3

Chair(s): Dingchang Zheng and Vito Starc

66-284 **Synchronization of Respiratory, Heartbeat and Blood Pressure Signals: 3D Plots and Indices**
Efrosini Gatsori, George Manis*

67-112 **Comparison of Methods to Measure Baroreflex Sensitivity in Brugada Syndrome**
Mireia Calvo*, Virginie Le Rolle, Daniel Romero, Nathalie Béhar, Pedro Gomis, Philippe Mabo, Alfredo Hernández

68-1 **Heart Failure, End-Systolic Pressure-Volume Relation**
Rachad Shoucri*

69-321 **Aortic-finger Pulse Transit Time vs R-derived Pulse Arrival Time: a Beat-to-Beat Assessment**
Emanuele Vaini*, Prospero Lombardi, Marco Di Rienzo

70-168 **Changes of Pulse Wave Velocity in Lower Limbs in Hypertensive Patients**
Magdalena Matejkova*, Vlastimil Vondra, Ladislav Soukup, Filip Plesinger, Ivo Viscor, Josef Halamek, Pavel Jurak

71-56 **Computational Study of Altered Pressure induced Arterial Remodeling**
Linxia Gu*, Shijia Zhao, Abdullah Ibrahim

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S51: Atrial Fibrillation Clinical Prediction

Room: A2

Chair(s): Philip Langley and Marianna Meo

72-138 **Automated Home Monitoring of Atrial Fibrillation in Heart Failure Patients**

Silviu Dovancescu*, Saeed Babaeizadeh

73-195 **A Novel Model of Atrial Fibrillation: Episode Recurrence and Disease Progression in a Virtual Patient Population**

Eugene TY Chang*, Yen Ting Lin, Julie Eatock, Kanwal K Bhatia, Tobias Galla, Richard H Clayton

74-279 **Drifting Rotors Prevalence Is Associated with Dominant Frequency Reduction after Persistent Atrial Fibrillation Ablation**

João Salinet*, Maria S Guillem, Tiago Almeida, Xin Li, Gustavo Goroso, Gavin Chu, G André Ng, Fernando Schlindwein

75-337 **Spectral Variation in Intracardiac Impedance as a Predictive Marker During Internal Cardioversion of Atrial Fibrillation**

Philip Walsh*, Omar Escalona, Vivek Kodoth, David McEneaney, Ganesh Manoharan

76-418 **Technological Challenges of Computing in Cardiology in AF Management**

Nadir Saoudi*

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S52: Challenge I

Room: A5

Chair(s): Ikaro Silva and Gari Clifford

77-43 **The PhysioNet/Computing in Cardiology Challenge 2015: Reducing False Arrhythmia Alarms in the ICU**

Gari Clifford*, Ikaro Silva, Benjamin Moody, Qiao Li, Danesh Kella, Abdullah Shahin, Tristan Kooistra, Diane Perry, Roger Mark

78-75 **A Multimodal Approach to Reduce False Arrhythmia Alarms in the Intensive Care Unit**

Sibylle Fallet*, Sasan Yazdani, Jean-Marc Vesin

79-78 **False Alarms in Intensive Care Unit Monitors: Detection of Life-threatening Arrhythmias using Elementary Algebra, Descriptive Statistics and Fuzzy Logic**

Filip Plesinger*, Petr Klimes, Josef Halamek, Pavel Jurak

80-22 **Reducing False Arrhythmia Alarms using Robust Interval Estimation and Machine Learning**

Christoph Hoog Antink*, Steffen Leonhardt

81-174 **Reduction of False Critical ECG Alarms using Waveform Features of Arterial Blood Pressure and/or Photoplethysmogram Signals**

Wei Zong*

82-129 **Decreasing the False Alarm Rate of Arrhythmias in Intensive Care using a Machine Learning Approach**

Linda M Eerikäinen*, Joaquin Vanschoren, Michael J Rooijakkers, Rik Vullings, Ronald M Aarts

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S53: Cardiorespiratory Applications

Room: A4

Chair(s): Guy Carrault and Kouhyar Tavakolian

83-102 **A Robust Detection Algorithm to Identify Breathing Peaks in Respiration Signals from Spontaneously Breathing Subjects**

Chathuri Daluwatte*, Christopher G Scully, George C Kramer, David G Strauss

84-225 **A Comparison of Obstructive Sleep Apnoea Detection using Three Different ECG Derived Respiration Algorithms**

Nadi Sadr*, Philip de Chazal

85-358 **Identification of Respiratory Phases using Seismocardiogram: A Machine Learning Approach**

Vahid Zakeri, Kouhyar Tavakolian*

86-180 **Sleep Apnea Detection Directly from Unprocessed ECG through Singular Spectrum Decomposition**

Pietro Bonizzi*, Joel Karel, Stef Zeemering, Ralf Peeters

87-239 **Ballistocardiogram Amplitude Modulation Induced by Respiration: a Wavelet Approach**

Quentin Delière*, Jens Tank, Irina Funtova, Elena Luchitskaya, David Gall, Philippe Van de Borne, Pierre-François Migeotte

88-67 **Real-Time Detection of Sleep Respiratory Disorders**

Delphine Feuerstein*, Laurence Graindorge, Amel Amblard, Aziz Tatar, Gustavo Guerrero, Sylvain Christofle-Boulard, Corinne Loiodice, Alfredo Hernandes, Jean-Louis Pepin

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S54: Excitation Contraction Coupling and Contraction

Room: A3

Chair(s): Ivo Provaznik and Jeremy Rice

89-48 **Mathematical Modeling of the Role of Cooperativity Between Contractile and Regulatory Proteins in the Mechano-Calcium Feedbacks in Myocardium**

Elena Shikhaleva, Tatiana Sulman, Arseniy Dokuchaev, Larisa Nikitina, Leonid B Katsnelson*

90-298 **From Microscopic Calcium Sparks to the ECG: Model Reduction Approaches for Multi-scale Cardiac Simulation**

Michael Alan Colman*, César Parra-Rojas, Erick Andres Perez Alday

91-117 **Calcium Alternas is a Global Order-Disorder Phase Transition: Robustness on RyR2 Release Dynamics**

Enrique Alvarez-Lacalle*, Angelina Peñaranda, Inmaculada R Cantalapiedra, Blas Echebarria, Yohannes Shiferaw

92-375 **Papillary Muscles Contraction Does Not Change Ventricular Wall Mechanics**

Jeremy Rice*, Slava Gurev

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P61: Cardiovascular Imaging

Room: Po2

93-26 **Customizing the Bull's-Eye to Improve the Clinician's Diagnostic Intuition**

Ezio-Maria Ferdeghini*, Vincenzo Positano, Gianluca Di Bella, Alessandro Pingitore, Daniele Rovai

94-326 **Fetal Magnetic Resonance Image Denoising Based on Homogeneity Testing and Non Local Means**

Kostas Haris, George Kantasis, Nicos Maglaveras, Anthony Aletras*

95-308 **MRI Simulation-based Evaluation of ECV Calculation using MOLLI T1 Maps**

Christos Xanthis, Anthony Aletras*

96-150 **Framework to Quantify the Metabolic Rate in the Heart using Monte Carlo Simulation and Compartmental Modeling**

Edward Florez Pacheco*, Henrique da Fonseca, Vani Vijayakumar, Sergio Shiguemi Furuie

97-63 **Left Ventricle Functional Geometry in Different Cardiac Pathology**

Tatiana Chumarnaya*, Olga Solovyova, Yulia Alueva, Sergey P Mikhailov, Valentina V Kochmasheva, Vladimir S Markhasin

98-266 **Detection of Fibrosis in LGE-Cardiac MRI using Kernel DL-based Clustering**

Juan Mantilla*, José Luis Paredes, Jean-Jacques Bellanger, Julian Betancur, Frédéric Schnell, Christophe Leclercq, Mireille Garreau

99-7 **Effect of Interpolation on Electroanatomical Mapping**

Margarita Sanromán-Junquera*, Raquel Díaz-Valencia, Arcadio García-Alberola, José Luis Rojo-Álvarez, Inmaculada Mora-Jiménez

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100-399 **Classification of Doppler Ultrasound Signal Quality for the Application of Fetal Valve Motion Identification**

Faezeh Marzbanrad*, Yoshitaka Kimura, Miyuki Endo, Marimuthu Palaniswami, Ahsan H Khandoker

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P62: Cardiovascular Models

Room: Po1

101-49 **Classifying Lung Congestion in Congestive Heart Failure using Electrical Impedance - A 3D Model**

Noam Omer*, Shimon Abboud, Marina Arad

102-304 **Causality in the Cardio-Postural Interactions During Quiet Stance**

Ajay Verma, Amanmeet Garg, Andrew Blaber*, Reza Fazel-Rezai, Kouhyar Tavakolian

103-404 **Influence of Psychological Stress on Systolic-Diastolic Interval (SDI) Interaction Measured from Surface Electrocardiogram (ECG)**

Chandan Karmakar*, Mohammad Hasan Imam, Peng Li, Marimuthu Palaniswami

104-191 **Radial Artery Pressure Wave-Derived Systolic and Diastolic Duration in Healthy Adults: Relation to Heart Rate and Age**

Peng Li, Chandan Karmakar*, Chengyu Liu, Changchun Liu

105-143 **Calculation of the Pulse Wave Velocity from Waveform of the Central Aortic Pressure Pulse in Young Adults**

Jana Hruskova*, Eva Zavodna, Jiri Moudr

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P63: Health Informatics: Technology

Room: Po2

106-320 **A Low-Cost Solution to follow the Evolution of Arrhythmic Patients**

Rene Ivan Gonzalez-Fernandez*, Margarita Mulet-Cartaya, Juan Dayron Lopez-Cardona, Alejandro Lopez Reyez, Rolando Lopez-Rodriguez, Rolando Emilio Lopez-Creagh, Eyglis Ledesma-Valdes

107-324 **A Mobile Application for Cardiac Rhythm Study**

Rene Ivan Gonzalez-Fernandez*, Margarita Mulet-Cartaya, Juan Dayron Lopez-Cardona, Rolando Lopez-Rodriguez

108-262 **Continuous Vital Monitoring and Automated Alert Message Generation for Motorbike Riders**

Björn Schmitz*, Christian Hofmann, Rafael Maestre, Andres Bleda, Vivien Melcher, Jos van Gent, Andreas Tobola

109-161 **Training-Induced Gene Expression Plasticity in Cardiac Function and Neural Regulation for Ultra-Trail Runners**

María Maqueda*, Emma Roca, Daniel Brotons, J Manuel Soria, Alexandre Perera

110-121 **Future Directions of Power Sources for Ambulatory ECG Monitors**

Philip A Catherwood, David Branagh, Dewar D Finlay*, James AD McLaughlin

111-365 **A Usability Evaluation of ECGSim: A Simulation Tool to Aid Learning in Electrocardiology**

Raymond Bond*, Eelco van Dam, Peter van Dam, Dewar Finlay, Daniel Guldenring

112-128 **Cardiac Monitoring in Head Area for Motorcycle Applications**

Andres L Bleda*, Rafael Maestre, Björn Schmitz, Christian Hofmann, Jose M Nacenta, Guadalupe Santa, Soledad Pellicer, Vivien Melcher

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113-231 **Human Authentication Implemented for Mobile Applications Based on ECG-Data Acquired from Sensorized Garments**

Daniel Tantinger*, Markus Zrenner, Nadine Lang, Heike Leutheuser, Bjoern Eskofier, Christian Weigand, Matthias Struck

114-139 **VitalSimML: A Well-Formed Data Structure to Capture Patient Monitoring Scenarios to Facilitate the Training of Nurses via Computer-Based Simulation**

Jonathan Currie*, Raymond Bond, Paul McCullagh, Pauline Black, Dewar Finlay

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P64: Tissue and Organ Modelling

Room: Po1

115-294 **Microscopic Modelling of the Non-Linear Gap Junction Channels**

Andjela Davidovic*, Yves Coudiere, Thomas Desplantez, Clair Poignard

116-226 **Adaptation of Rabbit Ventricular Cell Model to Reproduce Action Potentials in Isolated Papillary Muscles**

Ask Schou Jensen*, Cristian Pablo Pennisi, Cristian Sevcencu, Jørn Bolstad Christensen, Jette Elisabeth Kristiansen, Johannes Jan Struijk

117-223 **T-wave Morphology Depends on Transmural Heterogeneity in a High-Resolution Human Left-Ventricular Wedge Model**

Massimo W Rivolta*, Graham H Bevan, Viatcheslav Gurev, John J Rice, Coeli M Lopes, Jean-Philippe Couderc

118-222 **Influence of Gap Junction Dynamics on the Stability of Reentrant Waves in Cardiac Tissue**

Claudia Hawks*, Jorge Elorza, Jean Bragard, Inma R Cantalapiedra, Angelina Penaranda, Blas Echebarria

119-194 **Parameter Sensitivity from Single Atrial Cell to Tissue: How Much does it Matter? A Simulation and Multivariate Regression Study**

Eugene TY Chang*, Richard H Clayton

120-59 **Effects of Enhanced Sodium Currents in Mathematical Model of Heterogeneous Myocardium**

Nathalie Vikulova*, Anastasia Khokhlova, Olga Solovyova, Leonid Katsnelson

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121-214 **Influence of Right and Left Atrial Tissue Heterogeneity on Atrial Fibrillation Perpetuation**

Adrian Luca*, Vincent Jacquemet, Nathalie Virag, Jean-Marc Vesin

122-245 **Computer Analysis of Isolated Cardiomyocyte Contraction Process via Advanced Image Processing Techniques**

Jan Odstrcilik*, Vratislav Cmiel, Radim Kolar, Marina Ronzhina, Larisa Baiazitova, Martin Pesl, Jan Pribyl, Ivo Provaznik

123-405 **Voltage Sensitive Dye di-4-ANNEPS Prolongs Impulse Conduction Through Ventricles, but not Through AV Node in Isolated Rabbit Heart**

Veronika Olejnickova*, Marina Ronzhina, Oto Janousek, Jana Kolarova, Katerina Fialova, Ivo Provaznik, Marie Novakova

124-280 **Quantification of the Effects of Electrical Remodelling due to Hypertrophic Cardiomyopathy on Human Ventricular Electromechanical Activity and Energetics**

Gareth M Jones*, Michael A Colman, Ismail Adeniran, Henggui Zhang

125-393 **Robust Framework for Quantitative Analysis of Optical Mapping Signal without Filtering**

Ilija Uzelac*, Flavio Fenton

126-181 **3-D Modeling of the Thorax for Seismocardiography**

Alexandre Laurin*, Kouhyar Tavakolian, Andrew Blaber, Sébastien Imperial, Philippe Moireau, Dominique Chapelle

127-300 **Massively Parallel CUDA Simulations of Cardiac and Embryonic MRI on a Cloud-based Cluster**

George Kantasis, Christos Xanthis, Anthony Aletras*

Tuesday, September 8, 2015, 12:30

P65: Atrial Fibrillation

Room: Po2

128-232 **Robust Statistical Modeling of the Atrioventricular Node during Atrial Fibrillation**

Mikael Henriksson*, Valentina DA Corino, Leif Sörnmo, Frida Sandberg

129-229 **Characterization of AV-nodal Properties during Atrial Fibrillation using a Multilevel Modelling Approach**

Mikael Wallman*, Frida Sandberg

130-80 **Influence of Left Atrial Geometry on Rotor Core Trajectories in a Model of Atrial Fibrillation**

Konstantinos N Tzortzis*, Caroline H Roney, Norman A Qureshi, Fu Siong Ng, Phang Boon Lim, Spencer J Sherwin, Nicholas S Peters, Chris D Cantwell

131-403 **Methods for Analyzing Signal Characteristics of Stable and Unstable Rotors in a Realistic Heart Model**

Markus Rottmann*, Laura Unger, Gunnar Seemann, Amir Jadidi, Thomas Arentz

132-297 **Surface ECG Spectral Analysis to Predict Atrial Fibrillation Catheter Ablation Long-term Outcome**

Raul Alcaraz*, Fernando Hornero, Lorenzo Facila, Jose Joaquin Rieta

133-293 **The Lagged Central Tendency Measure Applied to Assess P-wave Duration Variability Improves Paroxysmal Atrial Fibrillation Onset Prediction**

Raul Alcaraz*, Arturo Martinez, Jose Joaquin Rieta

Tuesday, September 8, 2015, 12:30

134-335 **Far-Field Effect in Unipolar Electrograms Recorded from Epicardial and Endocardial Surface: Quantification of Epi-Endo Dissociation During Atrial Fibrillation in Humans**

Piotr Podziemski, Stef Zeemering*, Elham Bidar, Pawel Kuklik, Arne van Hunnik, Ulrich Schotten

135-124 **Towards Application of Complexity Measures of Atrial Electrograms to Predict Outcome of the Ablation Procedure**

Katarzyna Kośna*, Piotr Podziemski, Paweł Kuklik, Daniel Steven, Jan J Żebrowski, Stephan Willems

136-221 **F-wave Amplitude Stability on Multiple Electrocardiogram Leads in Atrial Fibrillation**

Marianna Meo*, Antonio R Hidalgo-Muñoz, Vicente Zarzoso, Olivier Meste, Decebal G Latcu, Nadir Saoudi

137-380 **Teager Energy Based Approach to Detect Atrial Peaks to Predict Atrial Fibrillation Recurrence**

Raquel Cervigón*, Javier Moreno, José Millet, Francisco Castells

Tuesday, September 8, 2015, 12:30

P66: ECG-Arrhythmias

Room: Po2

138-278 **Dynamic Coupling Between Atrio-Ventricular Duration and RR-Interval Histogram Phase-Rectification Analysis in Chronic Chagas Disease**

Paulo Roberto Benchimol-Barbosa, Olivassé Nasario-Junior, Roberto Coury Pedrosa, Jurandir Nadal*

139-307 **Comparison of Electric and Magnetic Cardiograms Produced by Myocardial Ischemia in Models of the Human Ventricle and Torso**

Erick Andres Perez Alday*, Chen Zhang, Michael Alan Colman, Haibo Ni, Zizhao Gan, Henggui Zhang

140-149 **The Effect of Voltage Sensitive Dye di-4-ANEPPS on the RT/RR Coupling in Rabbit Isolated Heart**

Petr Veselý*, Marina Ronzhina, Kateřina Fialová, Jana Kolářová, Josef Halámek, Marie Nováková

141-273 **A Novel Method for Automatic Standardization of Digital Electrocardiographs**

Eduardo Freitas*, João Salinet, Tiago Almeida, Henrique Oliveira

142-406 **Comparison of Intensity-based B-splines and Point-to-Pixel Tracking Techniques for Motion Reduction in Optical Mapping**

Jaime Yagüe-Mayans, Conrado J Calvo*, Antonio Cebrián, Francisco J Chorro, José Millet

143-130 **Cardiac Resynchronization Efficiency Estimation by New Ultra-High-Frequency ECG Dyssynchrony Descriptor**

Tereza Reichlova*, Pavel Jurak, Josef Halamek, Filip Plesinger, Jolana Lipoldova, Miroslav Novak, Pavel Leinveber

Tuesday, September 8, 2015, 12:30

144-95 **Feasibility of Compression Depth Estimation from the Acceleration Signal during Cardiopulmonary Resuscitation in Long-Distance Trains**

Digna M González-Otero*, Sofía Ruiz de Gauna, Jesús Ruiz, Beatriz Chicote, Sandra Plaza

145-276 **In Silico Investigation of the Pro-arrhythmogenic Effect of KCNQ1-G269S Mutation in Human Ventricles**

Haibo Ni*, Wei Wang, Erick Andres Perez Alday, Henggui Zhang

146-243 **Electrocardiographic Detection And Monitoring of Pulmonary Hypertension**

Marjolein C de Jongh*, Vivian P Kamphuis, Sumche Man, Arie C Maan, Hubert W Vliegen, Cees A Swenne

147-332 **Reliability of APD-Restitution Slope Measurement: Quantification and Methodological Comparison**

Michele Orini*, Neil Srinivasan, Peter Taggart, Pier Lambiase

148-206 **Role of Mechanics in Rhythm Disturbances in 1D Mathematical Model of Myocardial Tissue with Local Ca2+-Overload**

Alexander Kursanov*, Olga Solovyova, Leonid Katsnelson, Vladimir Markhasin

149-68 **Pulse Annotation of Automatic External Defibrillators Recordings during Out of Hospital Cardiac Arrest**

Clément Neyton*, Sarah Ménétré, Daniel Jost, Fabielle Angel, Bernard Gény, Vincent Lanoë, Jean-Philippe Didon

150-148 **Sample Entropy as a Shock Outcome Predictor during Basic Life Support**

Beatriz Chicote*, Unai Irusta, Elisabete Aramendi, Daniel Alonso, Carlos Jover, Carlos Corcuera

Tuesday, September 8, 2015, 12:30

151-87 **Alternatives to Estimate the Compression Depth from the Acceleration Signal during Cardiopulmonary Resuscitation**

Sofía Ruiz de Gauna*, Digna M González-Otero, Jesús Ruiz, Beatriz Chicote, Noelia Vidales

Tuesday, September 8, 2015, 12:30

P67: ECG Processing I

Room: Po1

152-24 **A Wavelet-Based High-Frequency Analysis of Fragmented QRS Complexes in Patients with Myocardial Infarction**

Chun-Cheng Lin*, Weichih Hu, Yu-Wei Lin

153-127 **Robust detection of ECG waves**

Anna Wojdeł*, Vicent J Ribas Ripoll, Miguel Teixidó-Roman, Pablo Ramos, Josep Brugada

154-258 **Detection of Irregular Heartbeats using Tensors**

Griet Goovaerts*, Ofelie De Wel, Bert Vandenberk, Rik Willems, Sabine Van Huffel

155-386 **ECG Baseline Wander Removal with Recovery of the Isoelectric Level**

Antonio Fasano, Valeria Villani*

156-109 **Low-Delay Estimation of the Real-Time Respiratory Rate from the ECG using a Bank of Notch Filters**

Leila Mirmohamadsadeghi*, Jean-Marc Vesin

157-347 **Causality Analysis of Atrial Fibrillation Electrograms**

David Luengo*, Gonzalo Rios-Muñoz, Victor Elvira

158-261 **Neural Network Approach for T-wave End Detection: a Comparison of Architectures**

Alexander Alexeis Suárez León*, Danelia Matos Molina, Griet Goovaerts, Carlos Vázquez Seisdedos, Steven Vandeput, Sabine Van Huffel

159-218 **A Comparison of Three Methodologies for the Computation of V-index**

Ebadollah Kheirati Roonizi*, Massimo W Rivolta, Luca T Mainardi, Roberto Sassi

Tuesday, September 8, 2015, 12:30

160-333 **Fractal Pattern of Heart Rate Variability Revealing Unknown Very Low Frequency Properties**
Dorota Kokosińska*, Jan Gierałtowski, Jan Żebrowski

161-204 **Angular Velocity Transition Along the QRS Loop Aid in the Detection of the QRS Complex End and Detection of Acute Myocardial Infarction**
Vito Starc*, Todd T Schlegel

162-164 **A LightWAVE Plug-in for Semi-automatic Annotation of Heart Beats from ECG Time Series**
Luca Citi*, Claudia Olariu, Riccardo Barbieri

163-98 **Novel Algorithm for Estimation ST-Segment Parameters**
Vadim Konuhov, Sergey Akulov, Anna Akulova*

164-183 **A Robust, Simple and Reliable Measure of Heart Rate Variability using Relative RR Intervals**
Marcus Vollmer*

165-407 **Assessment of Autonomic Nerve Activity by Circadian Rhythm at Different Stages after Acute Myocardial Infarction Based on Holter Data**
Hongduoer Liu*, Ping Zhan, Zhigang Wang, Yi Peng

Tuesday, September 8, 2015, 14:45

S71: Modelling of Causal Interactions

Room: A2

Chair(s): Giandomenico Nollo and Michele Orini

166-363 **Causal Relationships in Cardiovascular System Revealed by Transfer Entropy**

Dorota Wejer*, Luca Faes, Danuta Makowiec, Beata Graff

167-263 **Parameter Estimation of a Mathematical Model Describing the Cardiovascular-Respiratory Interaction**

Layli S Goldoozian, Antonio R Hidalgo-Muñoz, Vicente Zarzoso*, Edmond Zahedi

168-357 **Investigation of Causal Interactions Between Ventricular Action Potential Duration, Blood Pressure and Respiration**

Stefan Van Duijvenboden*, Michele Orini, Nick Child, Jaswinder S Gill, Peter Taggart, Ben Hanson

169-57 **Information-Theoretic Assessment of Cardiovascular-Brain Networks during Sleep**

Luca Faes*, Daniele Marinazzo, Giandomenico Nollo

Tuesday, September 8, 2015, 14:45

S72: Medical Informatics

Room: A5

Chair(s): Daniel Guldenring and Giovanni Bortolan

170-369 **Visualizing Evolving Clinical Sentiment using Vector Representations of Clinical Notes and Distributed Stochastic Neighbor Embedding**

Mohammad Mahdi Ghassemi*, Roger Mark, Shamim Nemati

171-159 **Heart Rate Estimation in Photoplethysmogram Signals using Nonlinear Model-Based Signal Processing**

Federico Wadehn*, Yue Zhao, Hans-Andrea Loeliger

172-359 **Comparison of Four Smartphone Compatible Blood Pressure Monitors**

Roderick Treskes*, Enno van der Velde, Daniëlle Eindhoven, Martin J Schalij

173-58 **A Novel Algorithm for Estimating Beat-to-Beat Systolic and Diastolic Blood Pressure using Chest Based ECG and Photoplethysmography**

*Xinhui Yang, Kevin Xu, Gang Chen, Shiping Li, Jordan Davis (Xuelin Xu)

Tuesday, September 8, 2015, 14:45

S73: Reentry and Defibrillation

Room: A4

Chair(s): Jose Felix Rodriguez Matas and Jean-Philip Couderc

174-92 **Self-Terminating Re-Entrant Cardiac Arrhythmias: Quantitative Characterization**

Alan P Benson, Barrie Hayes-Gill, Arun V Holden*, Rosa Matthews, Aneela Naz, Stephen Page, Eleftheria Pervolaraki, Muzahir Tayebjee

175-133 **Sustained Re-entry in a 3D Regionally Ischemic Human Heart: A Simulation Study**

Andres Mena-Tobar, Jose M Ferrero, Jose F Rodriguez-Matas*

176-344 **Multiple Virtual Electrodes Widen the Unpinning Interval**

Sebastian Berg*, T K Shajahan, Tariq Baig, Valentin Krinsky, Stefan Luther

177-396 **A New Low-Energy, Far-Field Defibrillation Mechanism**

Niels Otani*, Valentin Krinski, Stefan Luther

Tuesday, September 8, 2015, 14:45

S74: ECG-Based Arrhythmia Diagnosis

Room: A3

Chair(s): Dewar Finlay and Paul Rubel

178-19 **Classification of Cardiac Arrhythmia In Vitro Based on Multivariate Complexity Analysis**

Binbin Xu, Sabir Jacquir, Stéphane Binczak*, Hussein Yahai, Rémi Dubois

179-84 **Logistic Regression to Enhance Risk Assessment by Left Ventricular Ejection Fraction and f99**

Corrado Giuliani, Cees A Swenne, Sumche Man, Angela Agostinelli*, Sandro Fioretti, Francesco Di Nardo, Laura Burattini

180-288 **Big-Data Analytics for Arrhythmia Classification using Data Compression and Kernel Methods**

José María Lillo Castellano*, Inmaculada Mora Jiménez, Rafael Moreno-González, María Monserrat-García-de-Pablo, Arcadi García-Alberola, José Luis Rojo Álvarez

181-163 **Automatic Diagnosis of Complete Left Bundle Branch Block from Standard 12-lead Electrocardiogram**

Xiaojuan Xia*, Anne-Christine Ruwald, Martin Ruwald, Nene Ugoeke, Barbara Szepietowska, Valentina Kutyifa, Mehmet Aktas, Poul Erik Bloch Thomsen, Wojciech Zareba, Arthur Moss, Jean-Philippe Couderc

Tuesday, September 8, 2015, 16:00

S81: ECG Signal Processing

Room: A2

Chair(s): Vicente Zarzoso and Jocelyn Fayn

182-281 **Orthogonal Component Analysis to Remove Ventricular Far Field in Non Periodic Sustained Atrial Flutter**

Gustavo Lenis, Tobias Oesterlein, Dan-Timon Rudolph, Olaf Dössel*

183-327 **Validation of the V-index as a Metric of Ventricular Heterogeneity in Endocavitary Recordings**

Michele Orini, Claudio Blasi, Malcom Finlay, Ben Hanson, Pier Lambiase, Roberto Sassi, Luca Mainardi*

184-61 **Determining the Connection between Capacitively Coupled Electrocardiography Data and the Ground Truth**

Anna Böhm*, Christoph Hoog Antink, Steffen Leonhardt, Daniel Teichmann

185-155 **A Principal Component Analysis Approach for Heart Rate Turbulence Assessment in Chagas Disease**

Alex C Alberto*, Gabriel A Limeira, Jurandir Nadal

186-186 **Algorithm for Real-time Prediction of Neurally Mediated Syncope Integrating Indexes of Autonomic Modulation**

Ricardo Couceiro*, Paulo Carvalho, Rui Pedro Paiva, Jens Muehlsteff, Jorge Henriques, Christian Eickholt, Christoph Brinkmeyer, Malte Kelm, Christian Meyer

187-296 **Reliability Loss with Sampling Rate Reduction**

Paulo Sousa, Rute Almeida*, Marta João Silva, Ana Paula Rocha

Tuesday, September 8, 2015, 16:00

S82: Ventricular Arrhythmias

Room: A4

Chair(s): Jose Millet and Cees Swenne

188-110 **The Origin of Diastolic Micro-Signals Observed in Defibrillator Recipients Might Be Qualitatively Explained by a Simple Computational Model**

Aldo Casaleggio*, Paolo Rossi, Michele Migliore

189-62 **Investigation of the Functional Effects of KCNJ2-linked Short QT Syndrome on Electrical Conduction at Purkinje-Ventricle Junction at Low- and High-Frequency**

Cunjin Luo*, Kuanquan Wang, Qingjie Wang, Yongfeng Yuan, Zhili Li, Ming Yuan, Henggui Zhang

190-299 **Epicardial-Limited Electrophysiological Heterogeneities do not Facilitate Ventricular Arrhythmia Induction: An Experimental Study**

Antonio Guill, Alvaro Tormos, Conrado J Calvo, Eduardo J Roses, Antonio Cebrian, Luis Such-Miquel, Luis Such, Manuel Zarzoso, Francisco J Chorro, Jose Millet*

191-269 **Control of Ventricular Tachycardia under Myocardial Ischemic Conditions and Infarction**

Edda Boccia*, Stefan Luther

192-20 **Effects of Early Afterdepolarizations on Ventricular Tachycardia in Human Heart**

Jieyun Bai, Kuanquan Wang*, Yinghui Li, Henggui Zhang

Tuesday, September 8, 2015, 16:00

S83: Vascular Imaging

Room: A3

Chair(s): Ceisar Veiga and Nico Bruining

193-311 **Left Ventricular–Aortic Coupling in Sickle Cell Disease Underlies Diastolic Dysfunction**

Emilie Bollache*, Nadjia Kachenoura, Roberto Lang, Victor Mor-Avi, Amit Patel

194-314 **Phase Contrast MRI: Development of a User-Friendly Platform for Fast-Automated Segmentation and Fluid-Dynamic Post-Processing**

Selene Pirola, Filippo Piatti*, Francesco Sturla, Emiliano Votta, Igor Nesteruk, Massimo Lombardi, Alessandro Della Corte, Malenka Bissell, Alberto Redaelli, Enrico Caiani

195-346 **Design of Anthropomorphic Atherosclerotic Carotid Artery Flow Phantoms for Ultrasound Images**

Francesca Galluzzo*, Filippo Leonardo, Alessandro Ceruti, Luca De Marchi, Cristiana Corsi

196-202 **Aortic Pulse Wave Velocity using Wavelet Analysis in Magnetic Resonance Imaging**

Ioannis Bargiotas*, Elie Mousseaux, Wen-Chung Yu, Bharath Ambale Venkatesh, Emilie Bollache, Alain De Cesare, Joao A C Lima, Alban Redheuil, Nadjia Kachenoura

197-41 **A Fully Automated Approach to Aortic Distensibility Quantification from Fetal Ultrasound Images**

Giacomo Tarroni*, Silvia Visentin, Erich Cosmi, Enrico Grisan

198-30 **Measurement of IMT with Fuzzy Segmentation in Carotid Ultrasound Images**

Nader Jafarnia Dabanloo*, Faezeh Foolad, Gholamreza Attarodi, Emad Fatemizadeh

Tuesday, September 8, 2015, 16:00

S84: Challenge II

Room: A5

Chair(s): Gari Clifford and Ikaro Silva

199-415 **The PhysioNet/Computing in Cardiology Challenge 2015: Reducing False Arrhythmia Alarms in the ICU**

Gari Clifford*, Ikaro Silva, Benjamin Moody, Qiao Li, Danesh Kella, Abdullah Shahin, Tristan Kooistra, Diane Perry, Roger Mark

200-189 **Enhancing Accuracy of Arrhythmia Classification by Combining Logical and Machine Learning Techniques**

Vignesh Kalidas*, Lakshman Tamil

201-21 **Validation of Arrhythmia Detection Library on Bedside Monitor Data for Triggering Alarms in Intensive Care**

Vessela Krasteva, Irena Jekova, Remo Leber, Ramun Schmid, Roger Abaecherli*

202-36 **Reduction of False Alarms in Intensive Care Unit using Multi-feature Fusion Method**

Chengyu Liu*, Hong Tang, Lina Zhao

203-42 **Heart Beat Fusion Algorithm to Reduce False Alarms for Arrhythmias**

Chathuri Daluwatte*, Lars Johannesen, Jose Vicente, Christopher G Scully, Loriano Galeotti, David G Strauss

204-32 **Suppression of False Arrhythmia Alarms using ECG and Pulsatile Waveforms**

Paula Couto, Ruben Ramalho, Rui Rodrigues*

Wednesday, September 9, 2015, 08:30

S91: Cardiac MRI Technological Challenges

Room: A3

Chair(s): Enrico Caiani and Francesco Maffesanti

205-64 **Automatic Generation of Surface Meshes for Right Ventricle with 1-to-1 Vertex Correspondence from Cine-MR Images**

Yi Su*, May-Ling Tan, Soo-Kng Teo, Liang Zhong, Ru-San Tan

206-213 **Automatic Detection of Microvascular Obstruction in Patients with Myocardial Infarction**

Trygve Eftestøl*, Erlend Singsaas, Kjersti Engan, Leik Woie, Stein Ørn

207-277 **Feasibility of Variable Step Size Least Mean Squares for intra-MRI ECG Artefact Reduction**

André Guillou*, Sarah Ménétré, Grégory Petitmangin, Jacques Felblinger, Laurent Bonnemains

208-190 **Temporary Cardiac Pacing Leads Safety in MRI**

Qi Zeng*, Qinyan Wang, Ji Chen

209-374 **Comparison of Measurement and Calculation of the Electric Field Transfer Function for an Active Implant Lead in Different Media**

John Nyenhuis, John Jallal, Xiaoyi Min, Shiloh Sison*, Gabriel Mouchawar

210-316 **Lead Heating of a MRI Conditionally Safe Pacemaker System**

Gabriel Moucharwar, Shiloh Sison*, Shawn Chen, Xiaoyi Min, Ji Chen, John Nyenhuis, Richard Williamson

Wednesday, September 9, 2015, 08:30

S92: Heart Rate Variability

Room: A2

Chair(s): Carolina Varon and Riccardo Barbieri

211-111 **Spectral and Fractal Structures of Heart Rate Variability in Coronary Artery Disease Patients without Myocardial Infarction**

Paolo Castiglioni*, Marco Di Rienzo, Alberto Radaelli

212-207 **On Modelling RR Tails in Heart Rate Variability Studies: An Extreme Value Analysis**

Sónia Gouveia*, Manuel G Scotto

213-377 **Heart Rate Variability Analysis of Normal and Intrauterine Growth Restricted Children using Sample Entropy**

Taher Biala*, J Alexandre Lobo M, Michael Wailoo, Fernando Schlindwein

214-165 **Instantaneous Bispectral Analysis of Heartbeat Dynamics for the Assessment of Major Depression**

Ronald G Garcia*, Gaetano Valenza, Carlos Tomaz, Riccardo Barbieri

215-286 **Autonomic Nervous System Assessment in Critically Ill Patients Undergoing a Cognitive Rehabilitation Therapy**

David Hernando*, Marc Turon, Raquel Bailón, Sol Fernandez-Gonzalo, Jesús Lázaro, Gemma Gomà, Eduardo Gil, Jaume Montanyà, Josefina López, Candelaria De Haro, Pablo Laguna, Lluís Blanch

216-142 **Heart Rate Variability Associated with Walking Zen Meditation Kinhin: towards 'Contemplatio Actione'**

Masaki Hoshiyama*, Asagi Hoshiyama

Wednesday, September 9, 2015, 08:30

S93: ECG Miscellaneous

Room: A5

Chair(s): John Wang and Elaine Clark

217-352 **Impact of Mental Stress on Heart Rate Asymmetry**
Saman Parvaneh*, Nima Toosizadeh, Sadaf Moharreri

218-290 **Heart Morphology Differences Induced by Intrauterine Growth Restriction Measured on the ECG in Teenagers**
Nuria Ortigosa*, Fátima Crispi, Raquel Bailón, Mérida Rodríguez, Eduard Gratacós, Sebastián Savari, Marta Sitges, Bart Bijnens, Pablo Laguna

219-96 **Superiority of the Automated 5-Minute Summary ECG to Cardiologist Over-read Triplicate ECGs in Detection of QTc Change**
Jay W Mason*, Shaun Szot, Brock Heinz

220-88 **Predicting Mood Changes in Bipolar Disorder through Heartbeat Nonlinear Dynamics: a Preliminary Study**
Gaetano Valenza*, Mimma Nardelli, Gilles Bertschy, Claudio Gentili, Antonio Lanata, Enzo Pasquale Scilingo

221-132 **Repolarization Parameters of Heart Transplant Subjects**
Josef Halamek*, Pavel Jurak, Tereza Reichlova, Petr Vesely, Pavel Leinveber

222-185 **Assessment of Joint Interactions between Respiration and Baroreflex Activity using Joint Symbolic Dynamics in Heart Failure Patients**
Muammar Kabir*, Elyar Ghafoori, Larisa Tereshchenko

Wednesday, September 9, 2015, 08:30

S94: Atrial Fibrillation - Clinical

Room: A4

Chair(s): Johan De Bie and Pim Dassen

223-157 **Electrogram Coupling as a Measure of Local Conduction during Atrial Fibrillation**

Stef Zeemering*, Piotr Podziemski, Arne van Hunnik, Bart Maesen, Pietro Bonizzi, Ulrich Schotten

224-224 **Diagnosis of Atrial Fibrillation by means of Implantable Devices: The Role of Remote Monitoring**

Eugenio Cervesato*, Eugenia Bruschetta, Denis Fantin, Francesca Loro, Delia Zadnik, Marco Brieda, Ermanno Dametto, Federica Del Bianco, Sara Zardo, Edda Pollesel, Catya Zorzi, Matteo Cassin

225-289 **Assessment of QT-RR Intervals Relation in Patients with Atrial Fibrillation**

Luca Iozzia*, Luca T Mainardi, Federico Lombardi, Valentina D A Corino

226-113 **A High-Density Activation Map Estimation During Atrial Fibrillation**

Alejandro Alcaine*, Natasja MS de Groot, Pablo Laguna, Juan Pablo Martínez, Richard PM Houben

227-234 **Automatic Detection of Atrial Fibrillation using a MEMS Accelerometer**

Tero Koivisto*, Mikko Pänkäälä, Tero Hurnanen, Tuija Vasankari, Tuomas Kiviniemi, Antti Saraste, Juhani Airaksinen

228-306 **The U Wave in Atrial Fibrillation**

Philip Langley*, John Bourke, Alan Murray

Wednesday, September 9, 2015, 10:30

SA1: Clinical Electrocardiography

Room: A3

Chair(s): Paul Kligfield and Peter Macfarlane

229-334 **STEMI Classification in Acute Ischemia: Dependence on the Position of the ST-Deviation Measurement Relative to the J Point**

Sumche Man*, C Cato Ter Haar, Arie C Maan, Martin J Schalij, Cees A Swenne

230-79 **Long Term Follow Up of the Early Repolarization Pattern in Participants in the West of Scotland Coronary Prevention Study**

Elaine Clark*, Ian Ford, Peter Macfarlane

231-330 **Circadian Modulation on T-wave Alternans Activity in Chronic Heart Failure Patients**

Alba Martín-Yebra*, Enrico G Caiani, Pablo Laguna, Violeta Monasterio, Juan Pablo Martínez

232-235 **Validation of the Vessel-Specific Leads (VSLs) for Acute Ischemia Detection on a Dataset with Non-Ischemic ST-Segment Deviation**

John Wang*, Olle Pahlm, Galen Wagner, James Warren, Milan Horacek

233-371 **A Fundamental Relationship between Intraventricular Conduction and Heart Rate**

Jay W Mason*, Robert L Lux, Benhur Aysin, Thomas E Moon, Martino Vaglio, Fabio Badilini, Brock Heinz

234-419 **Engineering Issues in Clinical Electrocardiography**

JW Mason*

Wednesday, September 9, 2015, 10:30

SA2: Atrial Modelling and Fibrillation

Room: A2

Chair(s): Flavia Ravelli and Javier Saiz

235-295 **In Silico Investigation of Short QT Syndrome-Linked Potassium Channel Mutations on Electro-Mechanical Function of Human Atrial Cells**

Dominic G Whittaker*, Michael A Colman, Haibo Ni, Jules C Hancox, Henggui Zhang

236-193 **Uncertainty and Sensitivity Analysis of the Courtemanche-Ramirez-Nattel Human Atrial Cell mMdel using Gaussian Process Emulators**

Eugene TY Chang*, Richard H Clayton

237-188 **Sensitivity Analysis of Ectopic Electrical Activity in Pulmonary Vein Myocardium**

Hitomi Sano*, Yuichiro Tanaka, Yasuhiro Naito, Masaru Tomita

238-259 **Are Multi-electrode Arrays Able to Differentiate Anatomical from Functional Reentries in an Excitable Sheet?**

Laura Martínez*, José Jalife, Omer Berenfeld, Javier Saiz

Wednesday, September 9, 2015, 10:30

SA3: Automaticity and Markov Chains

Room: A5

Chair(s): Henggui Zhang and Stefano Severi

239-135 **Simulation of the Pacemaker Created from the Cardiomyocytes by Reducing Inward-Rectifier K+ Current**

Yue Zhang, Kuanquan Wang*, Henggui Zhang, Qince Li, Yongfeng Yuan

240-55 **The Role of Purkinje Automaticity as an Arrhythmia Mechanism in Hyperkalaemia**

Violeta Monasterio*, Jesús Carro, Esther Pueyo, José Félix Rodríguez

241-362 **A Novel Computational Model of the Human Sinoatrial Action Potential**

Alan Fabbri*, Matteo Fantini, Ronald Wilders, Stefano Severi

242-123 **Development of a Novel Markov Chain Model for Oxidative-dependent CaMKIIδ Activation**

Shanzhuo Zhang, Qince Li, Kuanquan Wang*, Henggui Zhang

243-267 **Evaluating Exponential Integrators for Markov Chain Ion Channel Models**

Tomas Stary*, Vadim Biktashev

244-94 **Applying Novel Identification Protocols to Markov Models of INa**

Michael Clerx*, Pieter Collins, Paul GA Volders

Wednesday, September 9, 2015, 10:30

SA4: Atrial Fibrillation Detection

Room: A4

Chair(s): Roger Mark and Leif Sornmo

245-400 **The Accuracy of Beat-Interval Based Algorithms for Detecting Atrial Fibrillation**

Alan Kennedy*, Dewar Finlay, Daniel Guldenring, Raymond Bond, James McLaughlin

246-85 **Analyzing the Atrial Depolarization Wavefront Triggered from Sinus Node and Coronary Sinus for Identification of the Arrhythmogenic Substrate**

Bhawna Verma*, Tobias Oesterlein, Armin Luik, Claus Schmitt, Olaf Dössel

247-18 **Atrial Fibrillation Detection Evaluation - Performance Measures**

Sándor Hargittai*

248-323 **Improved Detection of Activation Timings in Endoatrial Electrograms Through a Modified Sinusoidal Recomposition Method**

Maddalena Valinoti*, Graziano Vito Lozupone, Paolo Sabbatani, Roberto Mantovan, Stefano Severi, Cristiana Corsi

249-125 **Causality in Atrial Fibrillation Determined by Transfer Entropy**

Katarzyna Kośna*, Daniel Steven, Stephan Willems, Jan J Żebrowski, Paweł Kuklik

250-116 **Extracting Atrial Activations from Intracardiac Signals during Atrial Fibrillation using Adaptive Mathematical Morphology**

Sasan Yazdani*, Andrea Buttu, Etienne Pruvot, Jean-Marc Vesin, Patrizio Pascale

Wednesday, September 9, 2015, 12:30

PB1: Health Informatics: Algorithms

Room: Po1

251-230 **Novel Filter Technique to Improve R-Peak Detection for ECG Data with Motion Artefacts from Wearable Systems**

Nadine Lang*, Erik Haßlmeyer, Daniel Tantinger, Matthias Brischwein, Axel Heinrich, Heike Leutheuser, Stefan Gradl, Christian Weigand, Bjoern Eskofier, Matthias Struck

252-34 **Assessment of the Potential of Morphological ECG Features for Person Identification**

Irena Jekova*, Ivaylo Christov, Vessela Krasteva, Giovanni Bortolan, Mikhail Matveev

253-90 **Adaptive Frequency Tracking for Robust Heart Rate Estimation using Wrist-Type Photoplethysmographic Signals during Physical Exercise**

Sibylle Fallet*, Jean-Marc Vesin

254-167 **Studying Heart Rate Variability from Ballistocardiography Acquired by Force Platform: Comparison with Conventional ECG**

Alba Martín-Yebra*, Federica Landreani, Claudia Casellato, Esteban Pavan, Carlo Frigo, Pierre-François Migeotte, Enrico G Caiani

255-270 **Cardiac Arrhythmia Recognition with Robust Discrete Wavelet-Based Feature Extraction via Classifier Synthesis of MLP-BP and PNN Neural Networks**

Farhad Asadi*, Mohammad Javad Mollakazemi, Seyyed Abbas Atyabi, Ali Ghaffari, Dena Mafi

256-268 **Fusion Visualization for Cardiac Anatomical and Ischemic Models with Depth Weighted Optic Radiation Function**

Fei Yang, Weigang Lu*, Lei Zhang, Wangmeng Zuo, Kuanquan Wang, Henggui Zhang

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PB2: ECG Imaging

Room: Po2

257-200 **Accuracy of Lead Removal Versus Linear Interpolation in Noninvasive Electrocardiographic Imaging (ECGI)**

Laura Bear*, Mark Potse, Josselin Duchateau, Nejib Zemzemi, Rémi Dubois

258-265 **Exercise Induced Depolarization Changes in BSPMs for Assessment of Ischemic Heart Disease**

Michał Kania*, Roman Maniewski, Rajmund Zaczek, Małgorzata Kobylecka, Grzegorz Opolski, Leszek Królicki

259-315 **Virtual Normal Bipolar and Laplacian Electrodes for Activation Map Construction in ECGi**

Josselin Duchateau*, Yves Coudière, Mélèze Hocini, Michel Haïssaguerre, Rémi Dubois

260-160 **Generation of Combined-Modality Tetrahedral Meshes**

Karli Gillette*, Jess Tate, Peter Van Dam, Eugene Kholmovski, Rob MacLeod

261-356 **Evaluation of 2-norm versus Sparsity Regularization in Spline-Based Joint Reconstruction of Epicardial and Endocardial Potentials from Body-Surface Measurements**

Jaume Coll-Font*, Jingjia Xu, Petr Stovicek, Dana H Brooks, Linwei Wang

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PB3: Cardiovascular Models

Room: Po1

262-366 **Method for Adult Cardiomyocytes Long-Term Viability Monitoring using Confocal Microscopy Techniques**

Vratislav Cmiel*, Jan Odstrcilik, Ondrej Svoboda, Larisa Baiazitova, Ivo Provaznik

263-205 **Load-Dependency in Mechanical Properties of Sub-Epicardial and Sub-Endocardial Cardiomyocytes**

Anastasia Khokhlova*, Gentaro Iribe, Olga Solovyova

264-233 **Effects of Cardiac Structural Remodelling During Heart Failure on Cardiac Excitation – Insights from a Heterogeneous 3D Model of the Rabbit Atria**

Petros Kottas, Michael Colman*, Robert Stephenson, Simon Castro, Mark Boyett, Jonathan Jarvis, Henggui Zhang

265-166 **Silicon Heart: An Easy to Use Interactive Real-Time Baroreflex Simulator**

Michael Menzel*, Christopher Schölzel, Gernot Ernst, Andreas Dominik

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PB4: Autonomic Nervous System

Room: Po2

266-285 **Estimation of the Maximal Heart Rate to Improve Online Tonic-Clonic Seizure Detection using ECG**

Thomas De Cooman*, Anouk Van de Vel, Berten Ceulemans, Lieven Lagae, Wim Van Paesschen, Bart Vanrumste, Sabine Van Huffel

267-354 **Entropy in Description of Vasovagal Syndrome Mechanism**

Katarzyna Buszko*, Agnieszka Piątkowska, Edward Koźluk

268-182 **Is a Short Re-Feeding Program Effective in Reducing Adverse Cardiac Events in Eating Disorder Patients?**

Herbert F Jelinek*, Mika P Tarvainen, David J Cornforth, Ian Spence, Jan Russell

269-203 **Heart Rate Turbulence Modeling using Boosted Regression Trees**

Óscar Barquero-Pérez*, Rebeca Goya-Esteban, Arcadi García-Alberola, José Luis Rojo-Álvarez

270-253 **Evaluation of Vital Parameter Response to Load Changes using an Ergometer System in a Group of Healthy Subjects**

Alejandro Mendoza Garcia*, Ulrich Schreiber, Alois Knoll

271-33 **Validation of Fetal Autonomic Brain Age Score**

Dirk Hoyer*, Uwe Schneider, Dietrich Grönemeyer, Peter van Leeuwen

272-89 **Changes in Instantaneous Complex Dynamics during Exercise in Chronic Mountain Sickness**

Gaetano Valenza*, Francesco Faita, Lorenza Pratali, Nicola Vanello, Antonio Lanata, Riccardo Barbieri, Enzo Pasquale Scilingo

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273-144 **A Method to Measure Ventilation Rate during Cardiopulmonary Resucitation using the Capnogram**

Andoni Elola*, Beatriz Chicote, Elisabete Aramendi, Erik Alonso, Unai Irusta, Mohamud Daya, James K Russell

274-305 **Changes in Respiration During Emotional Stress**

Alberto Hernando*, Jesús Lázaro, Adriana Arza, Jorge Mario Garzón, Eduardo Gil, Jordi Aguiló, Raquel Bailón

275-10 **Cost-efficient Accurate Monitoring of Respiration Rate using ECG**

Saeed Babaeizadeh*

276-169 **New Indices for Sleep Apnea Detection in Long-Time ECG Recordings**

Agata Pietrzak, Gerard Cybulski*

277-272 **Accelerations versus Decelerations of the Heart Rhythm Differentiate Vasovagal Sensitive Humans**

Danuta Makowiec*, Wieslaw Miklaszewski, Zbigniew Struzik

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PB5: Heartrate Variability

Room: Po2

278-39 **Visualization of Autonomic Drive on the Heart Rhythm by Network Representation of RR Increments**

Danuta Makowiec*, Zbigniew R Struzik

279-196 **Endurance Exercise Improves Heart Rate Complexity in the Presence of Vagal Withdrawal in Young Adults**

Steven Perkins, Herbert Jelinek*, Beverlie de Jong, David Cornforth, Mika Tarvainen, Hayder Al-Aubaidy

280-322 **Mental Stress Measurement- A Comparison Between HRV based and Respiration Based Technique**

Shreyans Gandhi*, Maryam Shojaei Baghini, Soumyo Mukherji

281-351 **Evolution of the Heart Rate Variability Complexity during Kangchenjunga Climbing**

Óscar Barquero-Pérez, Rebeca Goya-Esteban*, Antonio Caamaño, Elena Sarabia-Cachadiña, Carlos Martínez-García, José Luis Rojo-Álvarez

282-97 **Lower Instantaneous Entropy of Heartbeat Dynamics during Seizures in Untreated Temporal Lobe Epilepsy**

Riccardo Barbieri*, Gaetano Valenza, Luca Citi, Fabio Placidi, Francesca Izzi, Maria Albanese, Maria Grazia Marciani, Maria Guerrisi, Andrea Romigi, Nicola Toschi

283-4 **Early Prediction of Ventricular Tachyarrhythmias based on Heart Rate Variability Analysis**

Hyojeong Lee*, Myeongsook Seo, Segyeong Joo

284-275 **The Development of LF/HF Ratio and its Dependence on the Mean Heart Rate in Children and Adolescents**

Eva Zavodna*, Jana Hruskova, Ksenia Budinskaya, Zuzana Novakova, Hana Hrstkova, Ludmila Brazdova, Natasa Honzikova

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285-118 **The Effect of Voltage-Sensitive Dye di-4-ANEPPS on Heart Rate Variability in Langendorff-Perfused Isolated Rabbit Heart**

Oto Janoušek*, Marina Ronzhina, Jakub Hejč, Veronika Olejníčková, Tibor Stračina, Kateřina Fialová, Marie Nováková, Ivo Provazník, Jana Kolářová

286-398 **Changes in Heart Rate Circadian Rhythm following Exercise in Middle-Aged Men**

Herbert F Jelinek*, Chandan Karmakar, Antti M Kiviniemi, Mikko P Tulppo, Timo H Mäkikallio, Arto J Hautala, Heikki V Huikuri, Ahsan H Khandoker, Marimuthu Palaniswami

287-360 **Evaluating Valence level of Pictures Stimuli in Heart Rate Variability Respons**

Shahab Rezaei*, Sadaf Moharreri, Nader Jafarnia Dabanloo

288-158 **Reduced Variability in Pulse Wave Velocity and Heart Rate in Depressed Patients with Suicidal Ideation**

Ahsan Habib Khandoker*, Veena Luthra, Yousef Abou Allaban, Raqibul Mostafa, Nayeefa Chowdhury, Khawza I Ahmed, Simanto Saha, Herbert Jelinek

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PB6: Blood Pressure Measurement and Monitoring

Room: Po1

289-395 **Discovering Prototypical Vital Signs Dynamic Behaviors within a Patient Cohort for Physiological Monitoring**

Li-Wei Lehman*, Roger Mark

290-392 **Patient Prognosis from Vital Sign Time Series: Combining Convolutional Neural Networks with a Dynamical Systems Approach**

Li-Wei Lehman*, Mohammad Ghassemi, Jasper Snoek, Shamim Nemati

291-53 **Comparison of Repeatability of Blood Pressure Measurements between Oscillometric and Auscultatory Methods**

Chengyu Liu*, Dingchang Zheng, Clive Griffiths, Alan Murray

292-378 **Aging Changes in the Regularity of Hemodynamic Parameters during Six-Minute Walk Test**

Marcos Hortelano, Richard Reilly, Raquel Cervigón*

293-325 **A Novel Method for Arterial Blood Pressure Pulse Detection Based on a New Coupling Strategy and Discrete Wavelet Transform**

Farhad Asadi*, Mohammad Javad Mollakazemi, Seyyed Ali Akbar Moosavian, Dena Mafi

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PB7: Membrane and Cellular Modelling

Room: Po1

294-37 **Investigation of the Pro-arrhythmic Effects of Domperidone by a Simulation Study**

Jing Zhou, Yongfeng Yuan, Qince Li, Kuanquan Wang*, Zhili Li, Henggui Zhang

295-227 **Model-based Analysis of the Effects of Thioridazine Enantiomers on the Rabbit Papillary Action Potential**

Ask Schou Jensen*, Cristian Pablo Pennisi, Cristian Sevcencu, Jørn Bolstad Christensen, Jette Elisabeth Kristiansen, Johannes Jan Struijk

296-65 **Effects of Amiodarone on Ventricular Excitation Associated with the KCNJ2-Linked Short QT Syndrome: Insights from a Modelling Study**

Cunjin Luo*, Kuanquan Wang, Ming Yuan, Zhili Li, Qingjie Wang, Yongfeng Yuan, Henggui Zhang

297-46 **Modeling and Simulation of Developmental Changes in Contractile Apparatus of Ventricular Cells**

Mao Takiguchi*, Tamami Toki, Hitomi Sano, Yasuhiro Naito, Masaru Tomita

298-147 **Investigation of The Mechanisms Underlying Cardiac Alternans – insights from a Computational Study**

Wei Wang*, Haibo Ni, Henggui Zhang

299-212 **Simulation of Effects of Inward-Rectifier K+ Current on the Automaticity of Human Ventricular Tissue**

Yue Zhang, Kuanquan Wang*, Henggui Zhang, Qince Li, Yongfeng Yuan

300-76 **Calcium Leak Induced Sinus Bradycardia**

Qingjie Wang*, Sanjay Kharche, Gareth Jones, Cunjin Luo, Chengchun Tang, Henggui Zhang

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PB8: ECG Processing II

Room: Po1

301-248 **Estimation of the Extent of Tissue Damage by Multi-resolution Analysis of the Electrocardiogram and Arterial Blood Pressure**

Seyyed Abbas Atyabi*, Mohammad Javad Mollakazemi, Farhad Asadi, Hamid Ebrahimi Orimi, Ali Ghaffari, Dena Mafie

302-409 **Time-Course of T-wave Flattening and P-R Prolongation under β-Adrenergic Challenge are Associated with Short-Term Biphasic Poincaré Shift in Mice**

Conrado J Calvo*, David Filgueiras, Francisco J Chorro, José Millet

303-313 **A Comparison Study Between Fainter and Non-fainter Subjects During Head-Up Tilt Test using Reconstructed Phase Space**

Nadine Khodor*, Guy Carrault, David Matelot, Nathalie Ville, François Carre, Alfredo Hernandez

304-329 **The Effect of Heart Orientation on High Frequency QRS Components in Multiple Bandwidths**

Jakub Hejč*, Marina Ronzhina, Oto Janoušek, Veronika Olejníčková, Marie Nováková, Jana Kolářová

305-210 **Ischemic ST Deviation Episodes Recognition via ECG using Extreme Learning Machine and Kernel Density Estimation**

Dena Mafie*, Seyyed Abbas Atyabi, Ali Ghaffari

306-343 **Characterisation of Cells Migration Through Cardiac Tissue using Advanced Microscopy Techniques and Matlab Simulation**

Larisa Baiazitova*, Josef Skopalík, Vratislav Čmiel, Ondřej Svoboda, Ivo Provazník, Zdenka Fohlerová, Jaromír Hubálek

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307-3 **Changes in the Electrocardiogram Induced by Coronary Artery Bypass Grafting**

Dimiter Simov, Ivaylo Christov*, Giovanni Bortolan, Mikhail Matveev, Ivo Petrov, Vessela Krasteva

308-9 **Hemodialysis-Induced ST-Segment Deviation**

Iana Simova, Ivaylo Christov*, Giovanni Bortolan, Roger Abächerli, Liliana Kambova, Irena Jekova

309-126 **Classification of Ventricular Premature and Ischemic Beats in Animal Electrograms**

Marina Ronzhina*, Lucie Maršánová, Radovan Smíšek, Veronika Olejníčková, Oto Janoušek, Petr Veselý, Jana Kolářová, Marie Nováková, Ivo Provazník

310-368 **The Frequency Changes in Electrograms During Ischemia Experiments – Analysis by Matching Pursuit Decomposition**

Jana Kolářová*, Petr Doležal, Marie Nováková, Ivo Provazník

311-292 **Magnetocardiography did not Uncover Electrically Silent Ischemia in an In-Silico Study Case**

Danila Potyagaylo*, Gunnar Seemann, Walther Schulze, Olaf Dössel

312-35 **Detection of Electrode Interchange in Right Precordial and Posterior ECG Leads**

Irena Jekova*, Vessela Krasteva, Remo Leber, Ramun Schmid, Roger Abächerli

313-197 **Distribution Entropy for short-term QT Interval Variability Analysis: A Comparison between the Heart Failure and Normal Control Groups**

Yang Li, Peng Li, Chandan Karmakar*, Changchun Liu

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314-397 **A Novel Technique for Analysing Beat-to-Beat Dynamical Changes of QT-RR Distribution for Arrhythmia Prediction**

Mohammad Hasan Imam, Chandan Karmakar*, Ahsan Khandoker, Marimuthu Palaniswami

315-385 **The Effects of Electrode Placement on an Automated Algorithm for Detecting ST Segment Changes on the 12-Lead ECG**

Dewar Finlay*, Raymond Bond, Alan Kennedy, Daniel Guldenring, James McLaughlin

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PB9: Challenge Posters

Room: Po2

316-106 **Reduction of False Cardiac Arrhythmia Alarms Through the Use of Machine Learning Techniques**
Miguel Caballero, Grace Mirsky*

317-171 **Signal Quality-Based Approach to False Arrhythmia Alarms Reduction**
Adam Mahdi*, Dragana Nikolic

318-115 **Reducing False Arrhythmia Alarms in the ICU**
Nadi Sadr*, Doan Trang Nguyen, Chandan Kalra, Alistair McEwan, Philip de Chazal

319-238 **False Alarm Reduction in ICU by Fusion of Neuro-SVM Classifiers and Heartbeat Detection from Multimodal Data: Geometrical and Multi-resolution Analysis**
Mohammad Javad Mollakazemi*, Seyyed Abbas Atyabi, Farhad Asadi, Ali Ghaffari, Dena Mafi

320-66 **Reducing False Arrhythmia Alarms in the ICU**
Soo-Kng Teo, Jian Cheng Wong, Bo Yang, Feng Yang, Tian You Zhang, Ling Feng, Toon Wei Lim, Yi Su*

321-387 **Multi-modal Integrated Approach towards Reducing False Arrhythmia Alarms During Continuous Patient Monitoring; PhysioNet/Computing in Cardiology Challenge 2015**
Sardar Ansari*, Ashwin Belle, Kayvan Najarian

322-60 **Reliability of Clinical Alarm Detection in Intensive Care Units**
Charalampos Tsimenidis, Alan Murray*

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323-52 **Reducing False Arrhythmia Alarms in the ICU using Novel Signal Quality Indices Assessment Method**
Runnan He*, Henggui Zhang, Kuanquan Wang, Yongfeng Yuan, Qince Li, Jiabin Pan, Zhiqiang Sheng, Na Zhao

324-136 **Reducing False Arrhythmia Alarms by Means of Beat Clustering**
Tilo Himmelsbach*

325-219 **Identification of ECG Signal Pattern Changes to Reduce the Incidence of Ventricular Tachycardia False Alarms**
Vytautas Abromavičius*, Artūras Serackis, Andrius Gudiškis

326-390 **Reducing False Arrhythmia Alarm by Quality Assessment of Multimodal Physiological Signals using Cepstrum Analysis**
Yongwei Zhu*

327-93 **Case-Based Reasoning and Multimodal Data Classification using Exponential Similarity and Signal Quality Indices**
Haiyan Yu*, Jiang Shen, Man Xu

328-119 **Algorithm for Life-Threatening Arrhythmias Detection with Reduced False Alarms Ratio**
Iga Grzegorczyk*, Kamil Ciuchciński, Jan Gierałtowski, Katarzyna Kośna, Piotr Podziemski, Mateusz Soliński

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MD: Plenary

Room: A1

Chair(s): Olivier Meste and Andrew Blaber

329-70 **T-Wave Alternans Hysteresis on Heart Rate**

Laura Burattini*, Sumche Man, Sandro Fioretti, Francesco Di Nardo, Cees A Swenne

330-338 **Three-Dimensional Echocardiography Based Evaluation of Right Ventricular Remodeling in Patients with Pressure Overload**

Francesco Maffessanti*, Karima Addetia, Megan Yamat, Lynn Weinert, Roberto Lang, Victor Mor-Avi

331-6 **A Study of Early Afterdepolarizations in Human Ventricular Tissue**

Nele Vandersickel, Alexander V Panfilov*

332-237 **Computer Simulations of Three-dimensional Coronary Blood Flow After CABG and Simulated PCI Procedures**

Jun-Mei Zhang*, Tong Luo, Jia Lin Soon, Ning Kang, Kenny Yoong Kong Sin, Swee Yaw Tan, Teing Ee Tan, Chong Hee Lim, Mathew Jose Chakaramakkil, Adrian Seng Wae Ooi, Aileen Mae Lomarda, Ru San Tan, Liang Zhong