COMPUTING IN CARDIOLOGY

September 24-27, 2017

Rennes, France

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Sponsors

Computing in Cardiology 2017 is supported by several companies and academic partnerships. The Local Organizing Committee thanks their partners:

Welcome to Maastricht in 2018!

On behalf of the local organizing committee, we warmly invite you to attend the 2018 Computing in Cardiology Conference to be held September 23-26, 2018 in Maastricht, The Netherlands.

Situated in the southernmost part of the Netherlands, Maastricht is located in the heart of Europe and the Euregion Meuse –Rhine. The city is only a short distance from both the Belgian and the German border, and cities such as Liege, Aachen, Düsseldorf, Frankfurt, and Brussels are very near. Maastricht is easily accessible by plane, train, and car.

Maastricht is the oldest city in the Netherlands, but its university is the youngest and most international one, with 16 000 students from more than 100 different countries. Being the gastronomic capital of the Netherlands, the city also offers everything from Michelin-starred establishments to traditional, small local restaurants and pubs offering hospitality and quality food for every budget.

The organizing committee, representing the Departments of Cardiology, Biomedical Engineering, Physiology, and Knowledge Engineering is currently preparing an active scientific and social program in and around Maastricht for Computing in Cardiology 2018. The focus of the Sunday Symposium will be twofold: advanced arrhythmia management and hands-on experience using a number of advanced computer models and software tools in cardiology. After a short introduction, 250 computers are waiting for the participants to discover the possibilities of various models to simulate, for example, cardiac contraction or electrical activation across various scales from ion-channel to whole heart. Activist and passivist programs will be offered during the social event on Monday afternoon, ranging from very lazy to breath-taking.

The Sunday symposium will take place at Maastricht University and the conference at the MECC Conference Centre, both within walking distance from your hotel or easily reachable using the public transportation, free of charge for CinC participants.

The organizing committee is looking forward to meeting you in Maastricht in 2018!

Willem Dassen and Tammo Delhaas, Co-chairs, CinC 2018

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Freeman Hospital
Newcastle upon Tyne, UK

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George Moody, MIT

Director, 2017 CinC Physionet Challenge
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Georgia Institute of Technology, Atlanta, Georgia, USA
Emory University, Atlanta, Georgia, USA.

Director of Information Services
Sheryl Prucka, MSEE
Prucka Engineering, Inc
Park City, UT, USA

Letter from the President

Dear Participant,

Welcome to the 44th Computing in Cardiology conference. This is the third time, after Lyon 2005 and Nice 2015, that the Computing in Cardiology community has met in France, a country with a long tradition of engineering applied to cardiology. The Board of Directors was very happy when Guy Carrault and colleagues from the University of Rennes volunteered to host this year's meeting. The research group in Rennes has large experience from collaborative projects involving academia, industry, and clinicians. They have prepared an excellent meeting and social program, and the record number of abstracts submitted demonstrates the increasing interest and huge impact of engineering in cardiology.

To ensure that the conference remains at the frontier of research, the following three special sessions are included in the program:

- ***Electrocardiographic Imaging: Challenges in Evaluation and Validation***
- ***Understanding the Basic Mechanisms of Atrial Fibrillation using Novel Computational Approaches***
- ***Clinical Guidelines in the practice eHealth: Where do we stand?***

The program also includes several clinical talks whose aim is to better connect clinical and engineering aspects of research. The titles are:

- ***Noninvasive Electrocardiographic Imaging: Touching Ground in Clinical Cardiology,*** by Paul Volders
- ***Cardiac Computing and Prevention of Sudden Cardiac Death in Athletes,*** by Frederic Schnell
- ***Prediction of Response to Cardiac Resynchronization Therapy: the Value of Cardiac Work When Compared to Other Dyssynchrony Parameters,*** by Erwan Donal
- ***Targeted Cardio-respiratory Rhythms Monitoring Used as Decision Support System in Neonatology***, by Patrick Pladys
- ***Noninvasive Electrocardiographic Imaging for Individuals at Risk for Idiopathic Ventricular Fibrillation***, by Paul Volders
- ***Apneas, Chronic Intermittent Hypoxia and Heart Rate Rhythm: Physiology and Exploration,*** by Alain Beuchée.

The Mortara Fellowships represent an extraordinary means for "reducing the distance" for young researchers with limited means so that they can present their work at CinC. The Rosanna Degani YIA Competition aims at promoting high standards in research quality by highlighting the best research projects conducted by young investigators. The PhysioNet-CinC Challenge represents a major effort to direct research towards clinically relevant topics, in which annotated data is provided to the research community. The Clinical Needs Translational (CTA) Award, given in collaboration with the ESC, aims at promoting developments which are tightly joined, and relevant, to the clinical needs. All these initiatives, being features of today's CinC, benefit from feedback from the scientific community. Therefore, I encourage you to provide the Board of Directors with feedback on these initiatives as well as any other aspects. It is the Board's commitment to do its best for guiding the progress of our CinC organization in the coming years.

At the end of this meeting, Peter Macfarlane, Leif Sörnmo, George Moody, Victor Mor-Avi, Paul Kligfield, and Alan Murray leave the Board. I would like to thank them for nine

or more years of hard work serving Computing in Cardiology. – Peter, first as a member, then as president, and most recently as past president, has guided the transformation of CinC for about a decade. Leif, as secretary, has established a well-organized repository of all the board debates, decisions, and documentation related to CinC. Victor, as Treasurer of CinC, has skillfully managed the finances with the introduction of the endowment fund which has allowed CinC to move closer to the objective of financing our awards from the interest of that fund. Paul, as our clinical expert, has driven the initiatives to close the gap between engineering and cardiology, while also contributing substantially to the financial vision of CinC. Finally, two non-elected Directors who will not be returning to the Board, George who organized the very successful Physionet Challenge for a decade, and Alan, editor of the Proceedings for almost three decades, guaranteeing that the format of the proceedings has met the highest standards. The CinC Proceedings are today recognized as top quality in the scientific community. To all these individuals, we offer our sincere thanks. Please remember that Board work is voluntary, at times with high workloads, making this service to CinC particularly worthy of acknowledgment.

This year also marks my final year as President of the Board. The last three-year term has at times been challenging, consolidating changes introduced just before my term started. New initiatives have been taken, including the Clinical Translational Award, in collaboration with the ESC e-cardiology working group, the special sessions and the clinical talks. All these initiatives reduce the gap between engineering and clinical applications. On the logistic side, we have introduced the ***Conference4me*** app to allow participants up-to-the minute information on the conference. In addition, we have advanced the proceedings to a fully digital publication which utilizes our own DOI for reference. An organization like CinC never reaches a steady state, but is always characterized by large dynamics. Because of this, the new Board will have to adjust to new scientific challenges and new organizational strategies. All these things cannot occur without the huge commitment of the Board members, for which I would like to thank each and every one of them. They have been a great support to me over the past three years, and I offer my successor, whoever that may be, every good wish for the continued success of CinC.

Again, it is time to remind any of you who might be considering hosting a CinC conference to contact the Secretary of the Board. Advanced planning is strongly encouraged, so please step forward. We would like to stress that all potential hosts are welcome, and we particularly encourage those from regions/countries that have not yet hosted a conference.

Finally, I hope you will have a scientifically stimulating meeting that will enable you to continue your work, raising new ideas and projects, and inspiring you to submit an abstract for presentation at next year's meeting in Maastricht, the Netherlands from 23 - 26 September 2018. Let me take this opportunity to thank Guy Carrault and the Rennes Local Organizing Committee for the work they have done in preparing Computing in Cardiology 2017. I am sure it will be a great success.

Best wishes,

Pablo Laguna
President, Computing in Cardiology

Welcome from our CinC 2017 Hosts

Dear Colleagues,

On behalf of the organizing committee, the University of Rennes, France, has the honor to host the 44th annual international conference of Computing in Cardiology from Sunday, September 24th through Wednesday, September 27th, 2017. The University of Rennes is a large University in France with over 60 000 students.

You don't come to Rennes by chance! Rennes is easily reached by TGV from Paris in 1h30. This is a lovely city with a long history. The city of Rennes, capital of Brittany, is a fashionable metropolis and emerging city in France offering something for everyone: arts, history, nightlife, shopping and science. You will be agreeably surprised by the ease of life in the city, classified as one the most appreciated French cities to live in with its trendy boutiques, creperies, and sea food restaurants. You will enjoy the old city, the cathedral Saint Pierre, Timber framed houses (place du Champ Jacquet), the sumptuous Parlement de Bretagne, the theatre, the city hall, the museum and, for the sportsmen, a ride along the canal Ille et Rance.

During the conference, you will enjoy the emerald seaside coast with the corsair city Saint-Malo, the beach in Dinard (and its English film festival just after the conference in 2017) and the majestic Mont Saint-Michel, a pure miracle, the second most visited tourist site in France.

For the scientific program, it is our pleasure to welcome you at the Ecole Supérieure d'Ingénieurs de Rennes, also called ESIR, of the University of Rennes, in the main campus of the University (Campus de Beaulieu). This venue is located near downtown (7 minutes by bus, see attached map) and it takes only a short ride to reach the historic center of the city, the museums and other places of interest.

It is the third time that France hosts a CinC conference. Only two years after Nice, and following Vancouver, you will discover Brittany, a very different country.

The Conference will begin on Sunday afternoon 24th September at 2:00 pm with a special symposium with invited talks related to the past, the actual and the future of cardiac stimulation. We would like briefly mention why this symposium is organized in Rennes. The conference is organized by *the Laboratoire Traitement du Signal et de l'Image* and the *Cardiologist Department of University Hospital* who have developed for several years a long cooperation, leading to more than 30 patents in cardiac stimulation (in a wide sense). It is our pride to mention that Rennes cardiologists proposed for the first time the principle of cardiac resynchronization to take in charge heart failure patients. The symposium will take place in a very old monastery, just located downtown, easily reachable by foot from the railway station. Six outstanding speakers will explore all the facets of cardiac stimulation. The Sunday reception will be located at the same place, in the large and beautiful reception room, in front of the small chapel of the monastery.

The scientific sessions, including oral and poster presentations, will begin on Monday morning. Note that some sessions will be followed by open discussions on various topics with the aim to strengthen the relationship between Clinicians and Engineers.

Monday afternoon, the traditional social program will be an opportunity to visit the second most visited place in France, Mont Saint-Michel. If you are activist, you will

discover Mont Saint-Michel in an unforgettable experience. If you are passivist, you will discover this marvelous city, steeped in history. This exploration will finish with a fabulous gala dinner downtown, in one of the most active parts of Rennes.

The sessions will continue on Tuesday, ending with a reception at the city hall offered by the city of Rennes. If you would like, a short visit of old Rennes streets or Parlement de Bretagne (before 1532, Brittany was independent of France and joined France when Anne de Bretagne married Charles VIII and then Louis XII) is also planned. The meeting will conclude on Wednesday afternoon, followed by a farewell party downtown.

The Laboratoire Traitement du Signal et de l'Image, the Cardiologist Department, INSERM and the University of Rennes have the pleasure and honor to be the host of Computing in Cardiology 2017. The Local Organizing Committee will enjoy assisting you in meeting your requests.

We hope that you will be intellectually stimulated and challenged by the CinC2017 scientific program and, at the same time, that Rennes and Brittany will delight you. We look forward to seeing you in Rennes.

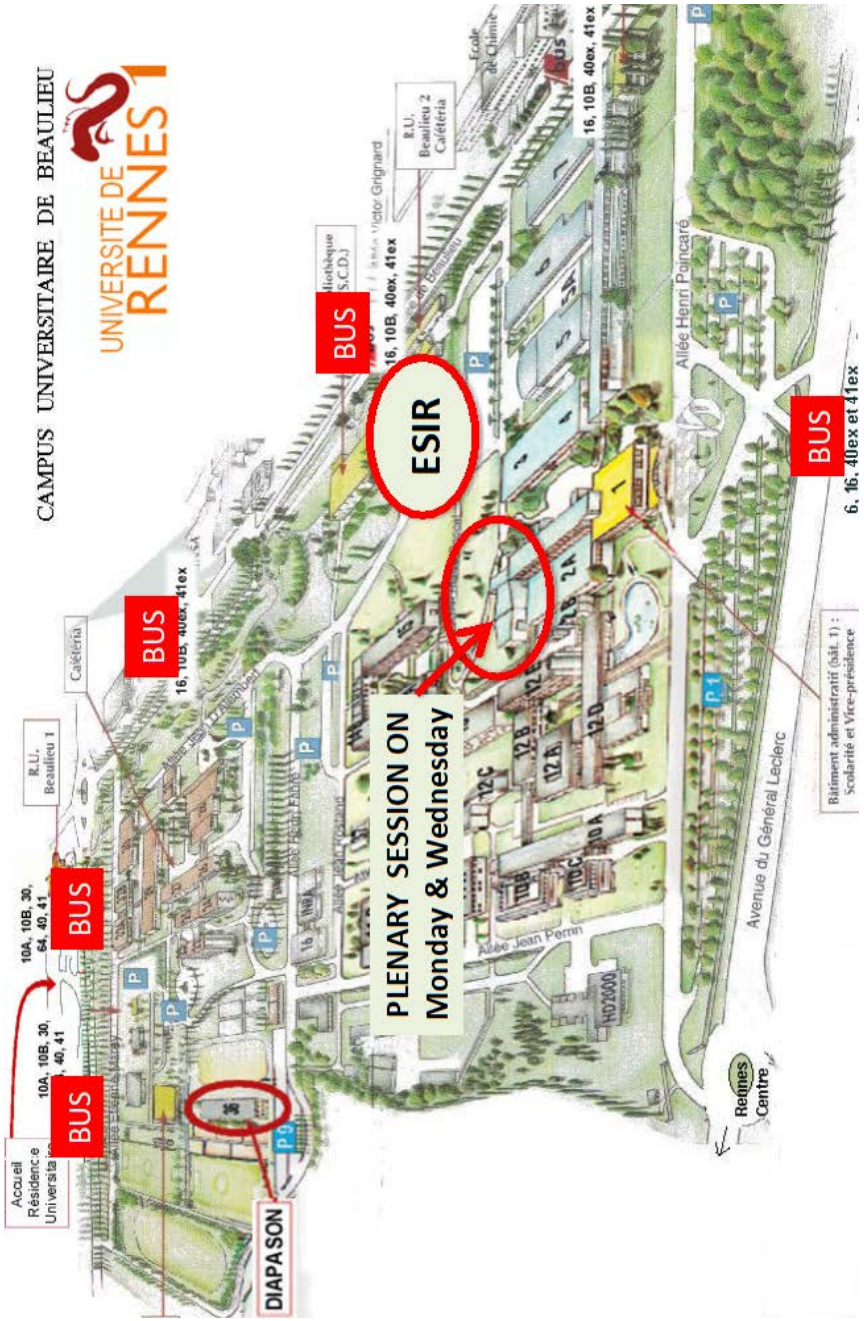
Guy Carrault

Chair of the Local Organizing Committee

Conference Information

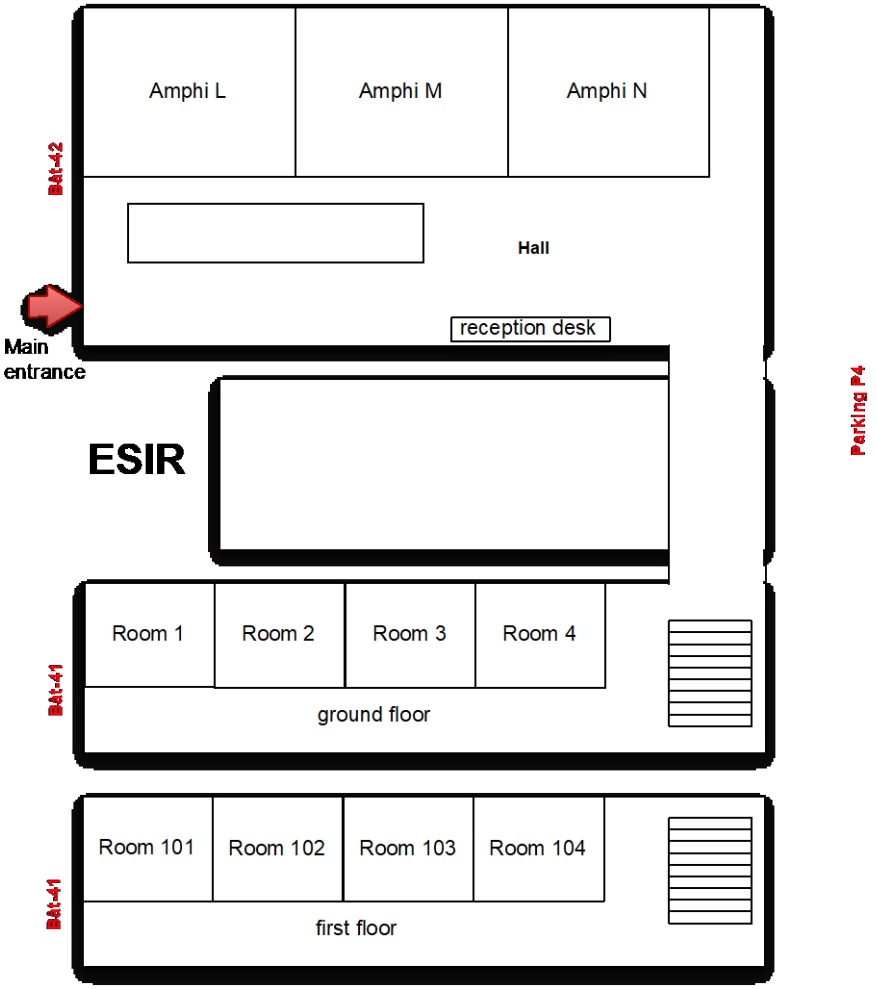
General Map

Map of the Campus de Beaulieu




UNIVERSITÉ DE RENNES 1
CAMPUS BEAULIEU
LÉGENDE DES PICTOGRAMMES
Accueil / Sécurité/Information
Salle d'examen
Restaurant Universitaire
Cafétéria
Point info étudiants
Point santé
Défibrillateur
Culture
Vélostar
Arrêt de bus
Parking
ÉTOILE
Arrêt Beaulieu Resto U
Arrêt Beaulieu Gué U
Arrêt Beaulieu INRA
Arrêt Beaulieu Chimie
Arrêt Tournebride
AVENUE DU PROFESSEUR CHARLES FOULON
AVENUE PIERRE DE COUBERTIN
AVENUE ÉTIENNE MAREY
ALLÉE ALFRED KASTLER
ALLÉE LAVOISIER
ALLÉE HENRI LE MOAL
ALLÉE FABRE
ALLÉE JEAN ROSTAND
ALLÉE MARIE CURIE
ALLÉE BLAISE PASCAL
ALLÉE HENRI PONCARÉ
ALLÉE EDOUARD BRANLY
ALLÉE BERTHELOT
ALLÉE LUCIEN HUBERT
ALLÉE LUCIEN DUBOIS
ALLÉE ALEXIS CARREL
AVENUE DU GÉNÉRAL LECLERC
AVENUE DE LA TOURELLE
RUE DU DOCTEUR LAENNEC
iut
ASTROLABE
INRA
ESIR
PARC DE LA TOURELLE
UNITÉ ACADÉMIQUE DE RENNES-ANNE
ENTRÉE PRINCIPALE N° 263
1A • Accueil / Standard • Administration, scolarité sciences • UFR SPM
2A • Appariteurs zone Sud • Amphis A, B, C, D, E, Louis-Antoine • Hall des examens
2B • TP informatique
3 • TP zoologie
4 • TP botanique • Collections et musée de zoologie
5 • TP géologie, électronique • Collections et musée de géologie
5A • Salle d'enseignement, IUT GEA
6 • TP physique, électronique
7 • TP chimie
8A • IUT Carrières sociales, GEA • Salle d'examen • SMUT, action sociale
8B • Bibliothèque Paul Le Bihec, • Salle Condorcet
9A • Pôle images et réseaux • Salle immersive INRA • Salle visioconférence (PNRB)
9B • Pôle Numérique Rennes Beaulieu (PNRB), SUPTICE
10 ABC • Institut des Sciences Chimiques de Rennes (ISCR)
10B • Amphi Daniel Gardejan • IPR, mécanique
11 ABCE • Institut de Physique de Rennes (IPR)
11A • OMPO
11 BCD • IETR (électronique)
12F • Accueil IRSA/INRA
12 ABDFG • IRSA, INRA (informatique), • Amphi G (INRA)
12D • ISTIC (UFR), amphi P, D3,
13 • UFR SVE, IGDR
14A, B • OSUR, ECOBIO, Géosciences
Institut Universitaire de Technologie (IUT) Rue du Docteur Laënnec
1 • Accueil, administration scolarité
2 • Service formation continue et alternance, département génie civil
3E 3T • Département génie civil, GMM
4A, 4E • Administration chimie, Département chimie
5E, 5T • Département GMP
6E, 6T • Département GEII
8A • Départements carrières sociales et GEA
8B • Bibliothèque Paul Le Bihec • Salle Condorcet
15 • Géosciences Rennes, OSUR
16 • Pôle mécanique
19 • Local colis
20 • Direction des Ressources Immobilières (DRIm)
20B • Service Qualité, Sécurité, Environnement (SQSE)
21 • SAUE (vie étudiante, pôle handicap) • SIMPPS (santé étudiant)
22 • UFR Mathématiques, LTSI
23 • IRMAR (Mathématiques)
24 • Archéologie, Agence comptable
25 • Recherche biologie environnement
26 • SELVA (langues vivantes)
27A • Salles d'enseignement
27 • Appariteurs zone Nord, Pôle pédagogique licences, salle d'examen Nord • Point info étudiant
28 • Amphis F, G, H, I, J, K (Victor Bach)
29 • TP biologie
30 • TP physique
31 • TP chimie
32A • TP biochimie, salle d'enseignement
32B • UFR Philosophie, Amphi 12
34 • Permanence weekend spot (SUAPS)
35 • SUAPS (sport)
36 • Dapason (service culturel)
37 • Serres botaniques
40 • Bibliothèque sciences et philosophie • Salles informatiques libre service • TP informatique
41
41Bis • ESIR (école d'ingénieurs), amphis M, N, L
42
43 • Locaux associations d'étudiants

Map of the ESIR School



Reaching Rennes and Transportation

Rennes is popular and it is very easy to access:

Rennes Airport is easily reached from Paris or several European capitals. It is located 15 minutes driving from the old city center. You can take bus 57 every 20 minutes to reach the old downtown in 30 minutes. Or you can take a taxi.

More than 5 TGV reach in 2h30 Rennes from Roissy airport railway station.

More than 10 TGV per day join Rennes from Paris in 1h30 from the Montparnasse railway station. To get to Montparnasse from Roissy airport, you have several possibilities:

- From Roissy airport take RER B, stop in metro Denfert-Rochereau and then go to Montparnasse metro line 6 (around 25 euros).
- To take an Air France bus **departing from each Terminal (Terminal 1, 2A, 2B, 2C, 2D, 2E, 2F)** (around 17 euros a single way). This is the easier option.
- From Orly, there is an Air France bus to Montparnasse which takes around 30 minutes for a modest cost of around 12 euros (20 euros return)

For your transportation in Rennes, the website http://www.star.fr will help you select the best journey (bus/metro). You can also choose to ride a bicycle. A special arrangement has been made with the Keolis society (public transportation society).

Rennes is probably the smallest town in the world with a metro. It has one line that could simplify your transportation from the railway station to downtown.

The main Rennes railway station "Gare de Rennes SNCF" is located in the heart of the city and can be easily reached by metro or bus. The network is extensive and serves the entire city**:** http://www.star.fr

Note that your **welcome bag will include a 3-day bus/metro travel pass** that will allow you to move around in Rennes for free.

Sunday Symposium

The symposium will take place in an old monastery, located at **Ecole Saint Vincent, 57 Rue de Paris, 35000 Rennes.**

From the airport, you can take either a taxi or bus 57 (every 20 minutes) to Rennes Republic (30 minutes) and take the line C3 (Bus stop Saint Vincent) or buses C6 or C4 (Bus stop Pont de Châteaudun). By bus, you will reach the symposium in 45 minutes (1.50 euro), and by taxi in 15 minutes (around 20 euros).

The topic of this year's symposium will be **"A Success story in CRT"** and **"Vagus nerve stimulation"** where six exciting talks by renowned cardiologist experts in the field will present the story, actual and future of cardiac stimulation, whatever the application (stimulation, resynchronization, follow-up, vagus nerve stimulation).

- 1:00 pm-1:45 pm: Registration
- 1:45 pm-2:00 pm: Opening remarks
- 2:00 pm: **A Success story in CRT**

  DAUBERT Jean-Claude: *ESC Gold Medal, Ex Head of the Rennes cardiology cardiologist Department,* **History, Challenges, Computing algorithms, Importance of Medical Imaging**

  HINDRICKS Gerhard: *Heart Center Leipzig, University of Leipzig, Department of Electrophysiology, Head of Department*, **Follow-up of Cardiac Decompensation**

  LINDE Cecilia: *Karolinska Institute, Cardiologist, Stockholm, Sweden,* **Future trends, New Leads**

- 4:15 pm-4:45 pm: Coffee break
- 4:45 pm: **Vagus nerve stimulation**

  DE FERRARI Gaetano - **DUSI Veronica** - : *Policlinico S Matteo, Pavia Italy and University of Pavia, Pavia Italy,* **Rationale of Vagus Nerve Stimulation**

  ZANNAD Faiez: *Prof Cardiology Thérapeutic Inserm & University of Lorraine, Head of Centre d'Investigation Clinique Pierre Drouin, U 1116*, **Clinical trials and why they fail in Heart Failure**

  HERNANDEZ Alfredo: *Directeur de Recherche INSERM, Université de Rennes 1, Head of the SEPIA Team LTSI-INSERM 1099*, **New Challenges in VNS**

- 6:15 pm-6:45 pm: Closing remarks and discussion
- 7:00 pm-11:00 pm: Reception at Ecole Saint Vincent, 57 Rue de Paris,Rennes

Conference site

The 44th annual international conference of Computing in Cardiology will meet at the Ecole Supérieure d'Ingénieurs de Rennes (also called ESIR), Campus de Beaulieu, University of Rennes 1, Rennes, France, from Monday, September 25th through Wednesday, September 27th, 2017.

The place is easily reachable by bus (bus stop “Ecole de Chimie" or "Tournebride" or "Insa,” see “Map of the Campus de Beaulieu” above). During the Computing in Cardiology conference, KEOLIS (Rennes public bus transportation) will increase the density and the frequency of the buses in the morning and the

evening (a bus every 3 minutes). The conference is being held in lecture rooms as outlined:

- Opening and closing ceremonies — Amphi Louis Antoine**, Building 2A**
- Regular oral sessions — Room Amphi L, Amphi M, Amphi N, Room 102, Room 103
- Poster sessions — Room 1, 2, 3, 4

Please refer to the map "Map of the Campus de Beaulieu" and "ESIR School" above for room localizations. The buildings and lecture rooms will be clearly marked with the Computing in Cardiology signs.

Monday Social Program

All social program participants are required to wear their CinC badges.

Each year at CinC, Monday afternoon is set aside to facilitate a social event. This is an **important part of the conference program as it allows attendees to network and relax** in a more informal setting away from the scientific sessions.

In the afternoon, the traditional social program will be an opportunity to visit the second most visited place in France, Mont Saint-Michel. If you are activist, you will discover Mont Saint-Michel through an unforgettable manner which you will remember for the rest of your life. You need for this social program a bag, water, sunglasses, and sunscreen. If you are passivist, you will discover this marvelous city, steeped in history.

This exploration will finish with a marvelous gala dinner downtown, in one of the most active parts of Rennes.

The social program will start at 1:00 pm on Monday by taking buses to Mont Saint-Michel. As it is traditional in the Computing in Cardiology Social Program, participants choose between Activist or Passivist activities on the registration website. As the social program starts immediately after the sessions, the participants may consider comfortable, informal dress for the whole day. However, the dressing code for the gala dinner should **not** be streetwear style!

Activists will go to Mont Saint-Michel, eat at a farm and then depart to cross the bay, with periodic sub-group departures, will be organized by the guide.

Passivists will go to Mont Saint-Michel, eat at a farm and then depart to Mont Saint-Michel city, with scale departures, will be organized by the guide. For those who have reduced mobility, we have organized the visit of the entrance and initial streets of the Mont Saint-Michel, and then a virtual presentation of the Mont Saint-Michel will be proposed at the farm.

The Monday Gala Dinner will be at 8:00 pm at **Halle Martenot, Place des Lices, 35000 Rennes**. The simplest way to reach Place des Lices is to ask "Je souhaiterais me rendre Place des Lices s'il vous plaît". Joking aside, it is very easy to find this place (see General Map).

Tuesday Evening Reception

The mayor of the city will offer us a reception at the *city hall at* 7:30 pm Place de la Mairie (see General Map) to all conference participants, including accompanying persons. Some refreshments and "canapés" will be offered. If you would like a short visit to old Rennes street or Parlement de Bretagne (before 1532, Brittany was independent from France and joined France when Anne de Bretagne married Charles VIII and then Louis XII) will be offered for those who pre-registered on the website. For both activities, the meeting point is at 6:30 pm at the city hall place.

Wednesday Evening Reception

For those remaining in Rennes and planning to visit Brittany, a friendly snack will be served at 6:30 pm in a famous bar in Rennes.

Hotel & Practical Information

Accommodation

For any budget: from 5-star luxury hotels to 1-star hotels as well as tourist residences, youth hostels. On the Cinc2017 website, you have a direct connection to hotels with allotment with the conference, but you can choose other hotels.

Climate

Brittany generally has a very sunny September month which is also the month of the low and high tides. The weather in Rennes in September is usually moderate with daily temperatures ranging from 15°C to 20°C. In the evening, we recommend using a jacket or a pullover.

Opening hours

Shops are usually open from 9:00 am to 7:00 pm from Monday to Saturday. Department stores may stay open until 9:00 pm. Banks are open from 8.30 am to 12:00 am and 2:00 pm to 4:30 pm, Tuesday to Friday, with some branches also opening on Saturday mornings. Most banks are closed on Monday.

Money/currency

Credit cards are accepted in many shops, hotels, and restaurants (there is usually a minimum amount of between 7 euros and 15 euros). You will find cash-points on just about every street corner (24 hours a day).

Bank branches, exchange offices, and some post offices handle currency exchange transactions and traveler's cheques. Whatever you are buying, prices are net. A gratuity is, however, the custom in restaurants and for certain specific services (e.g. taxi cabs).

Emergency phone numbers

- Dial the following numbers (toll-free)
- SAMU (medical emergencies): 15
- Police emergency: 17
- Fire brigade: 18
- European emergency call: 112
- Local Committee: (+33) 6 76184813

Calling

- To call France in France: 0 + area number + number
- To call France from abroad: 00 + 33 + number
- To call abroad from France: 00 + country exchange number + number

Electric standards

220 Volts - 380 Volts / 50 Hertz

A few tips for a pleasant, trouble-free stay

- You are strongly recommended to respect smoking/no smoking signs in public places. By law, most bars and restaurants in France operate a non-smoking policy.
- It is always useful to bring some cash for out-of-pocket expenses like taxi fares to the airport, drinks, etc.
- A service charge is included in the price of each item on the menu in any cafe or restaurant as required by French law. In theory, no further tipping is expected. However, it is pretty common to leave something after a bite to eat or a drink, especially when the service is good or attentive, or at a place where you are a frequent customer. Extra generosity will never hurt.
- If you are driving, park only where authorized and respect speed limits on highways and motorways.

Useful links

http://www.rennes-congres.fr and http://www.tourisme-rennes.com

Places to visit around Rennes and in Brittany

Please have a look on the website cinc2017.org for an ideal journey.

General Information

The conference registration and information desk will be located at Ecole Saint Vincent on Sunday and ESIR on the other days. The registration desk will be labeled with the CinC sign and will be open during the following hours:

- Sun, 24th September 1:00 pm – 6:00 pm: Ecole Saint Vincent
- Mon, 25th September 08:00 am – 1:00 pm : ESIR
- Tues, 26th September 08:00 am – 6:00 pm: ESIR
- Wed, 27th September 08:00 am – 6:00 pm: ESIR

Internet Access

Within the conference rooms, a wireless network will be available free of charge. Each participant will have a login and a password in his/her bag. For those using **Eduroam**, this network is available at the conference site. The only device you need is a WiFi-enabled laptop or smartphone. Should you need assistance in getting connected, please ask the nearest volunteer for help. Free WiFi access will be provided.

Meals

The delegates will not have to worry about meals. To ensure that the meeting is running in a timely fashion, the attendees are kindly asked to proceed quickly to the restaurant or buffet immediately after the session finishes.

- The **Sunday** symposium concludes with a cocktail at 7:00 pm in the splendid and unique old monastery Saint Vincent (see "Sunday Symposium" section above).
- **Monday** lunch box will be served in a unique and fantastic site, Mont Saint-Michel. You will have to wait until 1:30 pm for lunch, but you will be rewarded!
- **Monday** social event concludes with a dinner at 8:00 pm in the marvelous Halle Martenot in Place des Lices, one of the most majestic sites in Brittany (the location is in the city center Map).
- **Tuesday** buffet lunch will be provided on the Campus after the sessions and over-lapping the Poster session from 1:00 pm to 3:00 pm.
- After Tuesday sessions, participants are invited to travel to Place de la Mairie to enjoy a reception offered at 7:30 pm by the city hall. (Group transportation is not provided for this visit). If you would like to attend, both the old town visit or Parlement de Bretagne visit will begin at 6:30 pm.
- **Wednesday** buffet lunch will be served in the University Restaurant of the Campus after the sessions and overlapping the Poster session, from

1:00 pm to 3:00 pm. For the end of the conference, a Farewell snack will be given after 6:30 pm in a famous bar in Rennes.

Accompanying Persons (Guests)

The accompanying person (guest) registration allows the guest to attend:

- The visit and reception on Sunday evening at the Ecole Saint Vincent, 57 Rue de Paris, Rennes (see "Sunday Symposium" section below).
- The Monday social event starting at 1:00 pm with lunch, participation as an activist or passivist in the activities and in the gala dinner, to be held at 8:00 pm at the Hall Martenot (see General Map).
- The Tuesday reception at the city hall at 7:30 pm (see General Map - Place de la Mairie).
- The Wednesday farewell snack will be held after 6:30 pm in a famous bar in Rennes.

For Authors and Speakers

Oral Presentations

The time allocated for each oral presentation is 10 minutes, followed by 5 minutes for discussion. Speakers are expected to adhere strictly to this schedule, which will be enforced by session chairpersons to finish sessions on time and to permit participants to move successfully from one parallel session to another.

- All conference rooms will be equipped with a computer projection system (LCD projector and PC with Windows 7, Powerpoint 2013, Windows Media Player and Adobe Acrobat Reader).
- Due to Powerpoint version issues, PDF format is probably the most reliable one.
- Some MacBooks will also be at disposal.

Speakers are required to allow adequate time before their session to load and check their presentation. Also, speakers are required to meet with their session chairpersons in the scheduled conference room at least 10 minutes before the beginning of the session. It is a good idea to ensure that the chairperson knows how to pronounce your name correctly.

Poster Presentations

Poster sessions will take place in rooms 1, 2, 3, 4 (see ESIR map). Poster session P6 is on Tuesday, 26th September from 12:00-14:00, and Poster session PB is on Wednesday, 27th September, from 12:30-14:30. Authors are required to be present at their posters during their assigned session to discuss their work with other conference attendees.

- Check in: Authors presenting posters must check in with the session chair in the exhibition center during the 30 minutes before the poster sessions in which their presentations are scheduled.
- Posters may be hung after 8:30 am and prior to the start of the poster sessions for both P6 and PB.
- Posters stands and mounting material will be provided. Note that this year the maximum poster dimensions are A0 format. Posters may be a maximum of 84.1 cm wide and 118.9 cm tall.
- Posters are grouped by subject area, and each poster should be placed on the stand assigned to it (marked with a card corresponding to the page number of the abstract in the program book).
- If an author is not present to present a poster, it will not be published in the proceedings.
- Posters must be removed immediately after the end of the sessions to allow the timely cleaning of the Exhibition room.

Rosanna Degani Young Investigator Award

Computing in Cardiology hosts an annual competition to encourage young investigators and to provide a living memorial to Rosanna Degani.

Finalists in the competition will present their work in session M1, at 8:00 am on Monday, 25th September in room Amphitheatre Charles Antoine (see Map of the Campus de Beaulieu for details). The name of the winner will be announced during the closing plenary session on Wednesday.

Clinical Needs Translational (CTA) Award

Computing in Cardiology and the Working Group of e-Cardiology of the European Society of Cardiology (ESC) support this award designed to encourage participation of multidisciplinary research teams, with emphasis on the potential clinical applicability and impact of the research.

A representative of the winner team of this competition will present their work at the beginning of the Closing Plenary Session on Wednesday, 27th September in room Amphitheatre Charles Antoine (see Map of the Campus de Beaulieu for details).

PhysioNet/Computing in Cardiology Challenge 2017

Since 2000, Computing in Cardiology has annually issued a Physionet Challenge in cooperation with Physionet, part of the NIH sponsored Research Resource for Complex Physiologic Signals. The aim of this year's challenge is "AF Classification from a Short Single Lead ECG Recording". The challenge sessions are:

- Oral session S51 & SC1
- Poster sessions P69 & PB9
- Poster session P6A addresses follow-ups to previous challenges

Manuscripts

Computing in Cardiology will publish the conference proceedings containing the complete manuscripts of all presentations made at the conference. The complete proceedings will be freely available via the CinC Web site (http://www.cinc.org). The proceedings will also be published by IEEE in the IEEEXplore digital library. For any questions about manuscripts, consult the CinC web site http://www.cinc.org or contact via email editor@cinc.org.

Program Overview

Sunday, September 24, 2017

13:00	Sunday, September 24, 2017Symposium Registration
14:00	Symposium Part I: A Success Story in CRT, Chairpersons: Christophe Leclercq, Professor, Head of the cardiology Department of Rennes Hospital & Philippe Mabo, Professor, Head of the Unit Heart Lung and Vessels, Rennes Hospital
14:10	DAUBERT Jean-Claude ESC Gold Medal, Ex Head of the Rennes Cardiology Department History, Challenges, Computing algorithms, Importance of Medical Imaging
14:45	HINDRICKS Gerhard : Heart Center Leipzig, University of Leipzig, Department of Electrophysiology, Head of Department Follow-up of Cardiac Decompensation
15:30	LINDE Cecilia: Karolinska Institute, Cardiologist, Stockholm, Sučde Future trends, New Leads
16:15	Coffee Break
16:45	Symposium Part II: Vagus Nerve Stimulation, Chairpersons: Christophe Leclercq, Professor, Head of the cardiology Department of Rennes Hospital & Philippe Mabo, Professor, Head of the Unit Heart Lung and Vessels, Rennes Hospital
16:55	DE FERRARI Gaetano - DUSI Veronica - : Policlinico S Matteo, Pavia Italy and University of Pavia, Pavia Italy, Rationale of Vagus Nerve Stimulation
17:30	ZANNAD Faiez: Prof Cardiology Thérapeutic, Inserm & University of Lorraine, Head of Centre d'Investigation Clinique Pierre Drouin and INSERM 1116 Clinical trials and why they fail
18:00	HERNANDEZ Alfredo: Directeur de Recherche INSERM, Université de Rennes I Head of the SEPIA Team LTSI-INSERM 1099 New Challenges in VNS
19:00	Welcome Reception

Monday, September 25, 2017

8:00	Welcome to CinC 2017
8:10	M1: Rosanna Degani Young Investigator Finals
9:30	Coffee Break
9:45	S21: Resuscitation
9:45	S22: Diagnostic ECG
9:45	S23: SA Node & Atrial Conduction
9:45	S24: Sensors, Seismocardiography and Ballistocardiography
11:15	Coffee Break

11:30 S31: Vascular Imaging
11:30 S32: Cardiac Rotors in Arrhythmia
11:30 S33: Arrhythmias & Exercise
11:30 S34: Sudden Cardiac Death
12:30 Social Event

Tuesday, September 26, 2017

8:30 S41: Imaging for EP Interventions
8:30 S42: Detection of Atrial Fibrillation
8:30 S43: ECG Imaging
8:30 S44: Predictive Modelling of Cardiac Cells
10:00 Coffee Break
10:30 S51: Challenge I
10:30 S52: Long Term Monitoring
10:30 S53: ECG Imaging II
10:30 S54: MRI-based Cardiac Mechanics
12:00 Lunch
12:30 P6: Poster Session with Lunch
12:30 P61: Phonocardiography
12:30 P62: ECG Criteria and Signal Processing
12:30 P63: Ventricular Arrhythmias
12:30 P64: Mapping & Miscellaneous Arrhythmias
12:30 P65: Atrial Modelling
12:30 P66: Health Informatics & Technology
12:30 P67: Modelling Therapy
12:30 P68: Heart Rate Variability in Applications
12:30 P69: Challenge Posters I
12:30 P6A: Previous Challenges
14:30 Coffee Break
14:45 S71: Imaging Cardiac Motion
14:45 S72: Invasive Recordings and Atrial Fibrillation
14:45 S73: ECG/EG-based Analysis
14:45 S74: Heart Rate Variability
14:45 S75: Arrhythmias & Signal Processing
16:15 Coffee Break
16:30 S81: Cardiovascular Mechanics

16:30 S82: Repolarization
16:30 S83: Heart and Thorax Modelling
16:30 S84: Sleep Apnea
16:30 S85: ECG Analysis

Wednesday, September 27, 2017

8:30 S91: ECG Imaging III
8:30 S92: Cardiac Mechanics & Heart Failure
8:30 S93: Databases & Algorithm Development
8:30 S94: Heart Rate Analysis
10:00 Coffee Break
10:15 SA1: ECG in Exercise and Ischemia
10:15 SA2: Photoplethysmography & Sensor Technology
10:15 SA3: Cardiovascular Responses
10:15 SA4: Non-invasive Characterization of Atrial Fibrillation
12:00 PB: Poster Session with Lunch
12:00 PB1: Cardiovascular Imaging
12:00 PB2: Cardiovascular Mechanics
12:00 PB3: ECG Miscellaneous
12:00 PB4: Ventricular Modelling
12:00 PB5: Heart Rate Variability
12:00 PB6: Blood Pressure
12:00 PB7: System Analysis in Fetal and Pre-term Populations
12:00 PB8: Atrial Fibrillation
12:00 PB9: Challenge Posters II
14:00 Break
14:15 SC1: Challenge II
14:15 SC2: Special Session: Clinical Guidelines in e-Health: Where do we stand?
14:15 SC3: Special Session: Electrocardiographic Imaging: Challenges in Clinical Evaluation and Validation
14:15 SC4: Special Session: Understanding the Mechanisms of Atrial Fibrillation using Novel Computational Approaches
15:45 Break
16:00 MD: Closing Plenary
17:00 Closing Ceremony
17:30 Conference Closes

Program Details

Monday, September 25, 2017 **8:10**

M1 **Rosanna Degani Young Investigator Finals**

Chairs: Pablo Laguna and Olaf Doessel

Room: Amphi Louis Antoine

1-169 Comparison between Cardiac Baroreflex Sensitivity Estimates Derived from Sequence and Phase Rectified Signal Averaging Techniques During Head-up Tilt

8:10-8:30 Beatrice De Maria*, Vlasta Bari, Giovanni Ranuzzi, Laura Dalla Vecchia, Sergio Cerutti, Alberto Porta

2-173 Personalization of Atrial Fibrillation Antiarrhythmic Drug Treatments: a Population of Models Approach

8:30-8:50 Alejandro Liberos*, Alfonso Bueno-Orovio, Miguel Rodrigo, Ismael Hernαndez-Romero, Maria de la Salud Guillem Sαnchez, Francisco Fernandez-Aviles, Felipe Atienza, Blanca Rodriguez, Andreu M. Climent

3-70 GPU Implementation of Levenberg-Marquardt Optimization for T1 Mapping

8:50-9:10 Shufang Liu*, Aurιlien Bustin, Darius Burschka, Anne Menini, Freddy Odille

4-429 Development of a Computational Fluid Dynamics Model of the Left Atrium in Atrial Fibrillation on a Patient Specific Basis

9:10-9:30 Alessandro Masci*, Martino Alessandrini, Luca Dedθ, Davide Forti, Filippo Menghini, Corrado Tomasi, Alfio Quarteroni, Cristiana Corsi

S21 **Resuscitation**

Chairs: Sofia Ruiz de Gauna and Di Ge
Room: Amphi L

5-72 A Simple Algorithm for Ventilation Detection in the Capnography Signal During Cardiopulmonary Resuscitation

9:45-10:00 Mikel Leturiondo*, Jesus Ruiz, Sofia Ruiz de Gauna, Digna M Gonzɑlez-Otero, Josı M Bastida, Mohamud Daya

6-81 Chest Compression Metrics During Manual Cardiopulmonary Resuscitation: a Manikin Study

10:00-10:15 Sofia Ruiz de Gauna*, Digna M Gonzɑlez-Otero, James K Russell, Jesus Ruiz, Sara Pelayo, Purificacion Saiz

7-265 An Investigation into the Use of the Impedance Cardiogram as a Predictor of Manual Chest Compression Efficacy

10:15-10:30 Olibhıar McAlister*, Dewar D. Finlay, Raymond R. Bond, Daniel Guldenring, Ben McCartney, Laura Davis, Hannah Torney, Paul Crawford, Frances Denny, Rebecca Funston, David McEneaney

8-79 Closed-loop Adaptive Filtering for Suppressing Chest Compression Oscillations in the Capnogram during Cardiopulmonary Resuscitation

10:30-10:45 Mikel Leturiondo*, J.J. Gutiırrez, Sofia Ruiz de Gauna, Sandra Plaza, Jose F Veintemillas, Mohamud Daya

9-115 Removing Piston-driven Mechanical Chest Compression Artefacts from the ECG

10:45-11:00 Iraia Isasi*, Unai Irusta, Elisabete Aramendi, Unai Ayala, Erik Alonso, Jo Kramer-Johansen, Trygve Eftestol

10-254 Blinded Analysis of an Exercise ECG Database Using High Frequency QRS Analysis

11:00-11:15 Noam Omer*, Yair Granot, Jari Viik, Shimon Abboud

Monday, September 25, 2017 **9:45**

S22 **Diagnostic ECG**

Chairs: Pyotr Platonov and Cadathur Rajagopalan
Room: Amphi M

11-62	T-wave Alternans Presence in Young Competitive Athletes – to Be or Not to Be Accepted as a Prognostic Factor?
9:45-10:00	Iana Simova*, Ivan Gruev, Giovanni Bortolan, Ivaylo Christov, Sofia Georgieva
12-318	Multiscale Multifractal Analysis as a Screening Examination Tool
10:00-10:15	Dorota Kokosinska*, Jan Gierałtowski, Jan Żebrowski, Rafał Baranowski
13-116	Specificity of New Diagnostic Criteria for Left Ventricular Hypertrophy
10:15-10:30	Elaine Clark, Peter Macfarlane*
14-61	Detecting ECG Limb Lead-wire Interchanges Involving the Right Leg Lead-wire
10:30-10:45	Richard Gregg*, E. William Hancock, Saeed Babaeizadeh
15-186	Tensor-based Analysis of ECG Changes Prior to In-Hospital Cardiac Arrest
10:45-11:00	Griet Goovaerts*, Sabine Van Huffel, Xiao Hu
16-6	Electrocardiographic Parameters Indicative for Increased Risk of Adverse Events in Diabetics after Coronary Artery Bypass Grafting
11:00-11:15	Dimiter Simov, Ivaylo Christov, Iana Simova*, Mikhail Matveev, Ivo Petrov

Monday, September 25, 2017 **9:45**

S23 **SA Node & Atrial Conduction**

Chairs: Stefano Severi and Beatriz Trenor

Room: Amphi N

17-8 Bradycardic Effects of Mutations in the HCN4 Gene at Different Levels of Autonomic Tone in Humans

9:45-10:00 Alan Fabbri, Arie O. Verkerk, Stefano Severi, Ronald Wilders*

18-358 Electrophysiological Parameters in the Electrical Propagation During Atrial Fibrillation: a Population of Models Study

10:00-10:15 Ana Simon Chica, Alejandro Liberos*, Ismael Hernαndez-Romero, Alfonso Bueno Orovio, Miguel Rodrigo, Maria de la Salud Guillem Sαnchez, Felipe Atienza, Francisco Fernαndez-Avilιs, Blanca Rodriguez, Andreu M. Climent

19-15 Asymmetry of Unipolar Electrograms in a Thin Tissue with Epicardial-Endocardial Activation Delay

10:15-10:30 Eric Irakoze, Halekote Ramesh Chirasvi, Vincent Jacquemet*

20-44 Differential Sensitivities of Functionally Calibrated Populations of Atrial Cells to Pro-arrhythmia Markers in Normal Sinus Rhythm versus Chronic Atrial Fibrillation

10:30-10:45 Marcia Vagos*, Hermenegild Arevalo, Bernardo Lino de Oliveira, Joakim Sundnes, Mary Maleckar

21-424 Mechanism of Sinus Bradycardia in Carriers of the 1795insD Mutation in the SCN5A Gene

10:45-11:00 Ronald Wilders*

22-271 A Three-dimensional Computational Model of Action Potential Propagation through a Network of Individual Cells.

11:00-11:15 Pierre-Elliott Bιcue*, Mark Potse, Yves Coudiθre

Monday, September 25, 2017 **9:45**

S24 **Sensors, Seismocardiography and Ballistocardiography**

Chairs: Eduardo Gil and Enrico Caiani

Room: Room 102

23-190 Clinical Performance of High Frequency QRS Analysis for Detecting Ischemia Using Limited Sampling Rate

9:45-10:00 Noam Omer*, Yair Granot, Shimon Abboud

24-311 Contactless Mapping of Thoracic and Abdominal Movements: Applications for Seismocardiography

10:00-10:15 Pavel Shirkovskiy*, Alexandre Laurin, Mathias Fink, Dominique Chapelle, Ros K. Ing

25-203 Potential of Seismocardiography for Optimization of Cardiac Resynchronization Therapy

10:15-10:30 Kasper Sψrensen, Ajay Verma, John Zanetti, Samuel Emil Schmidt, Johannes Struijk, Kouhyar Tavakolian*

26-452 Potential of Sesimocardiogram for Non-invasive and Continuous Blood Pressure Monitoring

10:30-10:45 Kasper Sψrensen, Ajay Verma, Andrew Blaber, John Zanetti, Samuel Emil Schmidt, Johannes Struijk, Kouhyar Tavakolian*

27-381 Signal Detection Accuracy of Digital Accelerometers for Ballistocardiographic Propose

10:45-11:00 Nico Jδhne-Raden*, Klaus-Hendrik Wolf, Michael Marschollek

28-317 Respiratory Rate Detection Using a Camera as Contactless Sensor

11:00-11:15 Luca Iozzia*, Jesus Lazaro, Eduardo Gil, Luca Cerina, Luca Mainardi, Pablo Laguna

Monday, September 25, 2017 **11:30**

S31 **Vascular Imaging**

Chairs: Nadjia Kachenoura and Jean-Louis Dillenseger

Room: Room 102

29-481 Flow Imaging using MRI (Special Talk)

11:30-12:00 Nadjia Kachenoura*

30-328 Automatic Lumen Segmentation of Intravascular Optical Coherence Tomography Images by Adaptive Thresholding

12:00-12:15 Ali Pourmodheji*, Arash Taki

31-459 Wavelet Analysis for Multiresolution Tissue Characterization in Intracoronary Optical Images

12:15-12:30 Maysa M G Macedo*, Pedro Nicz, Carlos Campos, Pedro Lemos, Marco Antonio Gutierrez

Monday, September 25, 2017 **11:30**

S32 **Cardiac Rotors in Arrhythmia**

Chairs: Andreu Climent and Stef Zeemering

Room: Amphi M

32-348 Tracking Pivot Point of a Numerically Simulated Meandering Rotor Using Recurrence Period Density Entropy

11:30-11:45 Shivaram Poigai Arunachalam*, Suraj Kapa, Siva Mulpuru, Paul Friedman, Elena Tolkacheva

33-196 Image-based Computational Evaluation of the Competing Effect of Atrial Wall Thickness and Fibrosis on Re-entrant Drivers for Atrial Arrhythmias

11:45-12:00 Aditi Roy*, Marta Varela, Oleg Aslanidi

34-43 Spiral-wave Instability in a Medium with a Gradient in the Fibroblast Density: a Computational Study

12:00-12:15 Soling Zimik*, Rahul Pandit

35-307 Optimized Adjustment of a Reaction-diffusion Model to Case-specific Atrial Physiology: towards Clinical Implementation

12:15-12:30 Pedro Lind*, Yvonne Richter, Gunnar Seemann, Claudia Lenk, Philipp Maass

Monday, September 25, 2017 **11:30**

S33 **Arrhythmias & Exercise**

Chairs: Richard Gregg and Laura Burattini

Room: Amphi N

36-413 Cardiac Computing and Prevention of Sudden Cardiac Death in Athletes (Clinical Talk)

11:30-12:00 Frederic Schnell*

37-315 RR Stress Test Time Series Classification Using Neural Networks

12:00-12:15 Wilson Jaramillo*, Darwin Astudillo-Salinas, Lizandro Solano-Quinde, Kenneth Palacio-Baus, Sara Wong

38-430 Evaluation of Changes in T-wave Alternans Induced by 60 Days of Immobilization by Head-down Bed-rest

12:15-12:30 Alba Martin*, Violeta Monasterio, Pablo Laguna, Juan Pablo Martvnez, Enrico Caiani

Monday, September 25, 2017 **11:30**

S34 **Sudden Cardiac Death**

Chairs: Lofti Senhadji and Cees Swenne

Room: Amphi L

39-243 Optimisation of the Global Re-entry Vulnerability Index to Minimise Cycle Length Dependency and Prediction of Ventricular Arrhythmias During Human Epicardial Sock Mapping

11:30-11:45 Michele Orini*, Peter Taggart, Martin Hayward, Pier Lambiase

40-388 Influence of KCNQ1 S140G Mutation on Human Ventricular Arrhythmogenesis and Pumping Performance

11:45-12:00 Daun Jeong*, Ki Moo Lim

41-280 Automatic Coordinate Prediction of the Exit of Ventricular Tachycardia from 12-Lead Electrocardiogram

12:00-12:15 Prashnna Gyawali*, Shuhang Chen, Huafeng Liu, B. Milan Horacek, John L. Sapp, Linwei Wang

42-345 Electrical and Anatomical Imaging of Arrhythmogenic Substrates for Scar-related Ventricular Tachycardia

12:15-12:30 Omar Gharbia, Susumu Tao, Albert C. Lardo, Henry Halperin, Linwei Wang*

Tuesday, September 26, 2017 **8:30**

S41 **Imaging for EP Interventions**

Chairs: Antoine Simon and Samuel Schmidt
Room: Amphi L

43-479 Prediction of Response to Cardiac Resynchronization Therapy: the Value of Cardiac Work When Compared to Other Dyssynchrony Parameters (Clinical Talk)

8:30-9:00 Erwan Donal*

44-466 Integration of Electrical, Structural, and Anatomical Imaging for the Guidance of Cardiac Resynchronization Therapy

9:00-9:15 Uyen Chau Nguyen*, Matthijs Cluitmans, Casper Mihl, Justin J.G. Luermans, Bas L.J.H. Kietselaer, Sebastiaan C.A.M. Bekkers, Suzanne Gommers, Paul Volders, Frits W. Prinzen, Kevin Vernooy

45-436 Preliminary Computational Framework to Map MRI-Derived Markers to Predict Response to Cardiac Resynchronization Therapy

9:15-9:30 Carolina Vallecilla*, Martino Alessandrini, Claudio Fabbri, Corrado Tomasi, Cristiana Corsi, Stefano Severi

46-227 Multimodal Image Integration for Catheter Ablation of Ventricular Tachycardia

9:30-9:45 Nicolas Courtial*, Antoine Simon, Mathieu Lederlin, Sophie Bruge, Raphaλl P. Martins, Mireille Garreau

47-306 A Platform for Quantifying Atrial Structural Remodelling

9:45-10:00 Orod Razeghi*, Rashed Karim, John Whitaker, Catalina Tobon Gomez, Steven Niederer

Tuesday, September 26, 2017 **8:30**

S42 **Detection of Atrial Fibrillation**

Chairs: Pietro Bonizzi and Pawel Kuklik

Room: Amphi M

48-128 Detection of Atrial Fibrillation Using an Earlobe Photoplethysmographic Sensor

8:30-8:45 Thomas Conroy*, Jairo Hernandez Guzman, Burr Hall, Gill Tsouri, Jean-Philippe Couderc

49-11 Photoplethysmogram Modeling During Paroxysmal Atrial Fibrillation: Detector Evaluation

8:45-9:00 Andrius Sološenko*, Andrius Petrėnas, Vaidotas Marozas, Leif Sφrnmo

50-177 Validating Features for Atrial Fibrillation Detection from Photoplethysmogram under Hospital and Free-living Conditions

9:00-9:15 Linda M. Eerikδinen*, Lukas Dekker, Alberto G. Bonomi, Rik Vullings, Fons Schipper, Jenny Margarito, Helma M. de Morree, Ronald M. Aarts

51-153 Signal Quality Assessment of F-waves in Atrial Fibrillation

9:15-9:30 Mikael Henriksson*, Andrius Petrėnas, Vaidotas Marozas, Frida Sandberg, Leif Sornmo

52-220 Identification of Atrial Fibrillation Episodes Using a Camera as Contactless Sensor

9:30-9:45 Valentina Corino*, Luca Iozzia, Andrea Mariani, Giacomo D'Alessandro, Claudia D'Ettorre, Luca Cerina, Giorgio Scarpini, Federico Lombardi, Luca Mainardi

Tuesday, September 26, 2017 **8:30**

S43 **ECG Imaging**

Chairs: Natalia Trayanova and Jana Svehlikova
Room: Amphi N

53-337 A 64-Lead Body Surface Potential Mapping System
8:30-8:45 Joγo Salinet, Victor Marques*, Marcelo Mazzeto, Erick Camargo, Carlos Pastore, Idαgene Cestari

54-387 ECG-Based Reconstruction of Heart Position and Orientation with Bayesian Optimization
8:45-9:00 Jaume Coll-Font*, Dana Brooks

55-391 Effect of the Geometric Inaccuracy in MARS-based Inverse ECG Solution Approach
9:00-9:15 Φnder Nazım Onak*, Yeşim Serinağaoğlu Doğrusφz, Gerhard Wilhelm Weber

56-347 Exploring Possible Choices of the Tikhonov Regularization Parameter for the Method of Fundamental Solution in Electrocardiography
9:15-9:30 Judit Chamorro-Servent*, Rιmi Dubois, Yves Coudiθre

57-305 L_0 Norm Based Sparse Regularization for Non-invasive Infarct Detection Using ECG Signal
9:30-9:45 Sandesh Ghimire*, Linwei Wang

58-404 Inverse Localization of Intraventricular Pacing Sites by Equivalent Dipole Source
9:45-10:00 Jana Svehlikova*, Milan Tysler

Tuesday, September 26, 2017 **8:30**

S44 **Predictive Modelling of Cardiac Cells**

Chairs: Ronald Wilders and Michelangelo Paci
Room: Room 102

59-266 Using Populations of Models to Navigate Big Data in Electrophysiology: Evaluation of Parameter Sensitivity of Action Potential Models

8:30-8:45 Carlos Ledezma*, Benjamin Kappler, Veronique Meijborg, Bas Boukens, Marco Stijnen, PJ Tan, Vanessa Diaz-Zuccarini

60-109 Identification of Parameters Describing Phenomenological Cardiac Action Potential Models using Sigma-point Methods

8:45-9:00 Jesus Fernandez-Bes*, David Adolfo Sampedro-Puente, Esther Pueyo

61-250 In Silico Assessment of Nifedipine Effects on Human Heart Cells: Pharmacokinetic-pharmacodynamic Analyses at the Population Level

9:00-9:15 Mitra Abbasi*, Sebastian Polak

62-263 Sensitivity Analysis of the QT and JTpeak Intervals from a High-resolution Human Left-ventricular Wedge Model

9:15-9:30 Massimo W Rivolta*, Roberto Sassi, Viatcheslav Gurev, John J Rice, Coeli M Lopes, Jean-Philippe Couderc

63-126 Estimation of Drug Parameters for in Silico MEA/hiPSC-CM Asaays

9:30-9:45 Julien Bouyssier, Nejib Zemzemi*

64-312 IKs Computational Modeling to Enforce the Investigation of D242N, a KV7.1 LQTS Mutation

9:45-10:00 Chiara Bartolucci*, Cristina Moreno, Anna Oliveras, Carmen Mupoz, Alicia de la Cruz, Diego A. Peraza, Juan R Gimeno, Mercedes Martvn-Martvnez, Stefano Severi, Antonio Felipe, Pier D Lambiase, Teresa Gonzalez, Carmen Valenzuela

Tuesday, September 26, 2017 **10:30**

S51 **Challenge I**

Chairs: Gari Clifford and David Albert
Room: Amphi L

65-469 AF Classification from a Short Single Lead ECG Recording: the Physionet Computing in Cardiology Challenge 2017

10:30-10:45 Gari Clifford*, Chengyu Liu, Benjamin Moody, Ikaro Silva, Qiao Li, Alistair Johnson, Roger Mark

66-138 Robust ECG Signal Classification Using Neural Networks Enhanced by Novel Data Synthesis Models

10:45-11:00 Zhaohan Xiong*, Martin Stiles, Jichao Zhao

67-120 Heart Rhythm Classification using Short-term ECG Atrial and Ventricular Activity Analysis

11:00-11:15 Sasan Yazdani*, Priscille Laub, Adrian Luca, Jean-Marc Vesin

68-247 Enhancing The Performance of Atrial Fibrillation Detection by Boosting and Stacking Techniques

11:15-11:30 Dawid Smoleń*

69-336 Detection of Atrial Fibrillation in ECG Hand-held Devices Using a Random Forest Classifier

11:30-11:45 Morteza Zabihi*, Ali Bahrami Rad, Aggelos K. Katsaggelos, Serkan Kiranyaz, Susanna Narkilahti, Moncef Gabbouj

70-60 A Convolutional Recurrent Neural Network for Electrocardiogram Classification

11:45-12:00 Martin Zihlmann, Dmytro Perekrestenko*, Michael Tschannen

Tuesday, September 26, 2017 **10:30**

S52 **Long Term Monitoring**

Chairs: Roberto Sassi and Frida Sandberg

Room: Room 102

71-458 Wrist and Arm Body Surface Bipolar ECG Leads Mapping Study for Long-term Rhythm Monitoring

10:30-10:45 Omar Escalona*, Louise McFrederick, Maira Borges, Pedro Linares, Ricardo Villegas, James McLaughlin, David McEneaney

72-464 Arm-ECG Bipolar Leads Signal Recovery Methods for Wearable Long-term Heart Rate and Rhythm Monitoring

10:45-11:00 William David Lynn, Omar Escalona*, Pedro Vizcaya, David McEneaney

73-212 Distant Pulse Measurement System for Real-Time Surveillance Applications

11:00-11:15 Jaromir Przybyło, Mirosław Jabłoński, Eliasz Kańtoch*, Piotr Augustyniak

Tuesday, September 26, 2017 **10:30**

S53 **ECG Imaging II**

Chairs: Niels Otani and Peter Johnston

Room: Amphi M

74-478 Noninvasive Electrocardiographic Imaging for Individuals at Risk for Idiopathic Ventricular Fibrillation (Clinical Talk)

10:30-11:00 Paul Volders*

75-284 Evaluation of Inverse Problem with Slow-Conducting Channel in Scar Area in a Post-Infarction Model

11:00-11:15 Zexi Chen, Miguel Rodrigo*, Alejandro Liberos, Ismael Hernαndez-Romero, Jesus Requena, Andreu M. Climent, Maria de la Salud Guillem Sαnchez

76-320 A Volumetric Inverse Model Formulation Based on Transmembrane Current Sources

11:15-11:30 Yves Coudiθre, Mark Potse, Lisl Weynans*

77-438 On the Correctness of the Transmembrane Potential Based Inverse Problem of ECG

11:30-11:45 Vitaly Kalinin*, Alexander Kalinin, Walther Schulze, Danila Potyagaylo, Alexander Shlapunov

Tuesday, September 26, 2017 **10:30**

S54 **MRI-based Cardiac Mechanics**

Chairs: Mireille Garreau and Victor Mor-Avi

Room: Amphi N

78-172 Assessment of Aortic Pulse Wave Velocity Using 4D Flow Magnetic Resonance Imaging: Methods Comparison

10:30-10:45 Sophia Houriez--Gombaud-Saintonge*, Elie Mousseaux, Ioannis Bargiotas, Alain De Cesare, Thomas Dietenbeck, Kevin Bouaou, Alban Redheuil, Gilles Soulat, Umit Gencer, Yasmina Chenoune, Nadjia Kachenoura

79-88 Bayesian Classification Applied to Strain in Arrhythmogenic Left-Ventricle Cardiomyopathy

10:45-11:00 Yolanda Vives-Gilabert*, Begoρa Igual, Santiago Jimιnez, Jorge Sanz, Raquel Cervigσn, Antonio Cebriαn, Jose Manuel Santabαrbara, Josι Millet, Esther Zorio, Francisco Castells

80-180 Relative Aortic Blood Pressure Using 4D Flow MRI: Associations with Age and Aortic Tapering

11:00-11:15 Kevin Bouaou*, Ioannis Bargiotas, Damian Craiem, Gilles Soulat, Thomas Dietenbeck, Sophia Houriez--Gombaud-Saintonge, Alain De Cesare, Umit Gencer, Alain Giron, Alban Redheuil, Didier Lucor, Elie Mousseaux, Nadjia Kachenoura

81-396 Semi-automated Detection of Time-varying Contour for the Quantification of Mitral and Aortic Flow by Phase Contrast MRI

11:15-11:30 Enrico Caiani*, Federica Landreani, Giovanni Riso, Pierre Vaida, Pierre-Franηois Migeotte

82-34 Deep Learning in Left Ventricles Localization in MRI Cardiac Images

11:30-11:45 Abdulkader Helwan*

Tuesday, September 26, 2017 **12:30**

P61 **Phonocardiography**

Room: Rooms 1-4

83-290 Classification of Congenital Heart Disease Using SVM-MFCC from Phonocardiograph

Gholamreza Attarodi*, Asghar Tareh, Nader Jafarnia Dabanloo, Keivan Maghooli

84-296 Detection of Aortic Stenosis from PCG Signals Using Wavelet Packet Decomposition (WPD) and Parametric Models

Nader Jafarnia Dabanloo*, Pegah Derakhshan Mehr, Gholamreza Attarodi, Nazanin Hemmati, Keivan Maghooli

85-76 Second Heart Sound Onset to Identify T-Wave Offset

Agnese Sbrollini*, Marta Beghella Bartoli, Angela Agostinelli, Micaela Morettini, Francesco Di Nardo, Sandro Fioretti, Laura Burattini

Tuesday, September 26, 2017 **12:30**

P62 **ECG Criteria and Signal Processing**

Room: Rooms 1-4

86-353 Heartbeat Detection Using Oscillatory Envelope Pattern in Noisy Electrocardiogram

Hsiao-Lung Chan*, Yi-Sheng Lee, Chun-Li Wang

87-324 ECG-Based Predictors of Sudden Cardiac Death in Chagas' Disease

Alex Chaves Alberto*, Gabriel Azevedo Limeira, Roberto Coury Pedrosa, Vicente Zarzoso, Jurandir Nadal

88-7 Fine Tuning of the Dynamic Low-pass Filter for Electromyographic Noise Suppression in Electrocardiograms

Ivaylo Christov, Tatiana Neycheva, Ramun Schmid*

89-407 Robust Automatic Detection of P Wave and T Wave in Electrocardiogram

Dimitrios Zavantis, Ermioni Mastora, George Manis*

90-363 Information Theory Based Evaluation of Interactions between RR and QT Intervals in the Normal and People with High Risk for Cardiac Arrhythmias

Chenxi Li*, Yue Pan, Ping Zhan, Zhigang Wang, Zhengguo Zhang, Yi Peng

91-96 Beyond HRV: Analysis of ECG Signals using Attractor Reconstruction

Jane Lyle*, Philip Aston, Manasi Nandi, Esther Bonet-Luz

92-30 Irregular Heart Beat Detection Using Sequentially Truncated Multi-Linear Singular Value Decomposition

Alexander Suarez*, Griet Goovaerts, Carolina Varon, Carlos R. Vazquez Seisdedos, Sabine Van Huffel

93-231 A Novel Method for Deriving the 12-Lead ECG from Body Surface Potential Maps

Laura Bear*, Peter Huntjens, Mark Potse, Josselin Duchateau, Sylvain Ploux, Remi Dubois

94-238 New Improved Methodology for ECG Signal Compression
Rupali Tornekar*, Suhas Gajre

95-236 "Comparative Study of Lossless ECG Signal Compression Techniques for Wireless Networks"
Rupali Tornekar*, Suhas Gajre

96-110 Attenuation of QRS Power in the Frequency Range from 0.05 to 1 kHz
Josef Halamek*, Pavel Leinveber, Filip Plesinger, Magdalena Matejkova, Pavel Jurak

97-365 A Robust Detection Method of Short Atrial Fibrillation Episodes
Zouhair Haddi*, Jean-Franŋois Pons, Stıphane Delliaux, Bouchra Ananou, Jean-Claude Deharo, Ahmed Charao, Rachid Bouchakour, Mustapha Ouladsine

98-282 Characterizing Electrocardiographic Changes During Pre-seizure Periods through Temporal and Spectral Features
Lucia Billeci, Maurizio Varanini*

Tuesday, September 26, 2017 **12:30**

P63 **Ventricular Arrhythmias**

Room: Rooms 1-4

99-274 Prediction of Ventricular Tachycardia Using Nonlinear Features of Heart Rate Variability and Artificial Neural Network Classifier

Nastaran Ehtiati, Gholamreza Attarodi*, Nader Jafarnia Dabanloo, Javid Farhadi Sedehi, Ali Moti Nasrabadi

100-253 Prediction of the Exit Site of Ventricular Tachycardia Based on Different ECG Lead Systems

Michał Kania*, Yves Coudiθre, Hubert Cochet, Michel Haossaguerre, Pierre Jaos, Mark Potse

101-51 Non Invasive Assessment of Spatiotemporal Organization of Ventricular Fibrillation through Principal Component Analysis

Marianna Meo*, Mark Potse, Stιphane Puyo, Laura Bear, Mιlθze Hocini, Michel Haossaguerre, Rιmi Dubois

102-376 Computational Study of the Effect of KCNJ2 E299V Mutation on Ventricular Arrhythmogenesis and Electromechanics

Jiyeong Lee*, Yoo Seok Kim, Ki Moo Lim

103-255 Prediction of Ventricular Fibrillation from HRV Signals Using Combination of Genetic Algorithm and Neural Networks

Javid Farhadi Sedehi, Nader Jafarnia Dabanloo*, Gholamreza Attarodi, Mehdi Eslamizadeh

104-46 Effect of Different Ventricular Arrhythmia Origin on Cardiac Sound Variability using M-mode Signal Representation

Raïl Ortiz-Puente*, Margarita Sanromαn-Junquera, Sergio Mupoz-Romero, Mercedes Ortiz, Rebeca Goya-Esteban, Jose Luis Rojo-Alvarez, Jesïs Almendral-Garrote

Tuesday, September 26, 2017 **12:30**

P64 **Mapping & Miscellaneous Arrhythmias**

Room: Rooms 1-4

105-291 Atrial Electro-anatomic Mapping with a Novel Noncontact Approach

Shu Meng*, Jichao Zhao, Nigel Lever, Gregory Sands, Laura Bear, Anne Gillis, Bruce Smaill

106-383 Dual-sided Mapping During Global Stretch Using a Custom Miniaturized Endocardial Balloon with a Multipurpose Multichannel Acquisition System for Preclinical Electrophysiological Studies

Conrado J. Calvo*, Alvaro Tormos, Eduardo Roses, Manuel Zarzoso, Antonio Cebriαn, Santiago Jimenez, Elena Simarro, Jaime Yagóe, Josι Millet, Javier Chorro, Antonio Guill

107-456 A Single-sensor High-resolution Panoramic Optical Mapping Configuration for Simultaneous Non-overlapped Complete Atrial and Ventricular Parametric Imaging

Conrado J. Calvo*, Antonio Guill, Alvaro Tormos, Manuel Zarzoso, Luis Such-Miquel, Luis Such, Francisco Chorro, Josι Millet

108-431 A High Resolution Bi-atrial Optical Mapping System for the Analysis of Arrhythmia in the Hypertensive Heart

Girish Ramlugun*, Gregory Sands, Jichao Zhao, Ian LeGrice, Bruce Smaill

109-13 Doppler Based Algorithm for Reconstructing the Origin of the Drifting Rotor Due to Spatial Temperature Gradients

Guy Malki*, Sharon Zlochiver

110-367 Design and Presenting of a Novel Algorithm Using Anfis for New Generation of Cardiac Pacemakers

Asghar Dabiri Aghdam, Nader Jafarnia Dabanloo, Gholamreza Attarodi*, Mohammad Sattari, Nazanin Hemmati

111-48 Study on the Alternatives to Reduce High-Frequency Noise from Invasive Recordings of Atrial Fibrillation
Miguel Martvnez, Juan Rødenas, Raul Alcaraz, Josι J Rieta*

112-49 Application of the Stationary Wavelet Transform to Reduce Power-line Interference in Atrial Electrograms
Miguel Martvnez, Juan Rødenas, Raul Alcaraz, Josι J Rieta*

113-73 Open-loop Adaptive Filtering for Suppressing Chest Compression Oscillations in the Capnogram during Cardiopulmonary Resuscitation
Mikel Leturiondo*, Jesus Ruiz, J.J. Gutiιrrez, Luis A Leturiondo, Jose F Veintemillas, James K Russell, Mohamud Daya

114-476 AF Classification from a short single lead ECG recording using Deep Learning
Sonia Thomas*, Sael Lee

115-399 Heart Arrhythmia Classification Using Extracted Features in Poincare Plot of RR Intervals
Shahab Rezaei, Sadaf Moharreri, Saman Parvaneh, Mostafa Abdollahpur*

116-440 Pathline Strategy for Reconstructing Coherent Conduction Velocity Maps During Arrhythmias
Ismael Hernαndez-Romero*, Alejandro Liberos, Miguel Rodrigo, Carlos Figuera, Maria de la Salud Guillem Sαnchez, Francisco Fernαndez-Avilιs, Angel Arenal, Felipe Atienza, Andreu M. Climent

117-143 Wavelet Based Algorithm for the Automatic Detection of Activations in Intracardiac Records in the Presence of Supraventricular Tachyarrhythmia
Jaime Yagóe-Mayans*, Francisco Castells, Javier Moreno, Josι Millet Roig, Raquel Cervigσn

118-272 Atrial Fibrillation Analysis for Real Time Patient Monitoring
Ragheed Allami, Andrew Stranieri, Faezeh Marzbanrad*, Venki Balasubramanian, Herbert F Jelinek

Tuesday, September 26, 2017 **12:30**

P65 **Atrial Modelling**

Room: Rooms 1-4

119-122 A Spatially Extended Model of the Human Atrioventricular Node
Mikael Wallman*, Frida Sandberg

120-218 Pace-and-Drive of the Human Sinoatrial Node: a Preliminary Computational Investigation
Alan Fabbri, Axel Loewe, Ronald Wilders, Stefano Severi*

121-219 Effects of the Small Conductance Calcium-Activated Potassium Current (IsK) in Human Sinoatrial Node
Alan Fabbri, Michelangelo Paci*, Jari Hyttinen, Ronald Wilders, Stefano Severi

122-310 In Silico Analysis of the Effects of Fibroblasts Coupling to Atrial Myocytes under Conditions of Atrial Fibrillation Remodeling
Jorge Sɑnchez, Beatriz Trenor*, Javier Saiz

123-37 Lead and Carbon Monoxide Effects on Human Atrial Action Potential. in Silico Study
Catalina Tobon*, Diana C Pachajoa, Juan P Ugarte, Andres Orozco-Duque, Javier Saiz

124-26 Maximization of Left Atrial Information through the Optimization of ECG Lead Systems
Axel Loewe*, Sebastian Debatin, Gustavo Lenis, Olaf Doessel

Tuesday, September 26, 2017 **12:30**

P66 **Health Informatics & Technology**

Room: Rooms 1-4

125-118 An Interactive Virtual Reality Environment for Analysis of Clinical Atrial Arrhythmias and Ablation Planning
Axel Loewe*, Emanuel Poremba, Tobias G. Oesterlein, Nicolas Pilia, Micha Pfeiffer, Olaf Doessel, Stefanie Speidel

126-382 CEPM: Web-based Education & Research Platform for Cardiac Electromechanics
Febrian Setianto*, Ki Moo Lim

127-94 A System for Electrocardiographic Studies in the Community
Rene Ivan Gonzalez-Fernandez*, Jorge Aquilera-Perez, Gisela Montes de Oca-Colina, Marisabel Lopez-Fernandez

128-68 An Optimized Drug Similarity Framework for Side-effect Prediction
Yi Zheng*, Shameek Ghosh, Jinyan Li

129-422 Characterization of Screen-printed Textile Electrodes Based on Conductive Polymer for ECG Acquisition
Andrea Achilli*, Danilo Pani, Annalisa Bonfiglio

130-461 Characterizing Dry Electrodes Impedance by Parametric Modeling for Arm Wearable Long-term Cardiac Rhythm Monitoring
Antonio Bosnjak, Pedro Linares, James McLaughlin, Omar Escalona*

131-71 Biomedical Signal Quality Assessment via Learning to Rank with an Application to Mechanical Heart Signals
Olli Lahdenoja, Mojtaba Jafari Tadi*, Matti Kaisti, Timo Knuutila, Mikko Pδnkδδlδ, Tero Koivisto

132-90 A Database of Electrocardiogram Signals Acquired in Different Magnetic Resonance Imaging Scanners
Johannes Krug*, Marcus Schmidt, Georg Rose, Michael Friebe

133-142 Comparison of Compression Solutions for Impedance and Field Potential Signals of Cardiomyocytes
Pauline Guyot*, Levy Batista, El-Hadi Djermoune, Jean-Marie Moureaux, Leo Doerr, Matthias Beckler, Thierry Bastogne

134-299 Study of Similarity Measures for Case-Based Reasoning in Transcatheter Aortic Valve Implantation
Hιlθne Feuillβtre*, Vincent Auffret, Miguel Castro, Hervι Le Breton, Mireille Garreau, Pascal Haigron

135-113 Time-varying Acoustic Emission Characterization for Guidewire Coronary Artery Perforation Identification
Alfredo Illanes*, Anna Schaufler, Ivαn Maldonado Zambrano, Axel Boese, Michael Friebe

136-450 Parsing HL7 aECG Files and Segmenting Leads for Interactive Progressive-based Interpretation of the 12-Lead Electrocardiogram
Andrew Cairns*, Raymond Bond, Dewar Finlay, Daniel Guldenring, Aaron Peace, Fabio Badilini, Guido Libretti

137-402 Respiratory Frequency Estimation from Accelerometric Signals Acquired by Mobile Phone in a Controlled Breathing Protocol
Federica Landreani, Alba Martin, Claudia Casellato, Esteban Pavan, Carlo Frigo, Pierre-Franηois Migeotte, Andrea Faini, Gianfranco Parati, Enrico Caiani*

138-248 Cardiac-gated Slit Lamp Videography as a Novel Approach to Assessing a Microcirculatory Network
Paul F. Brennan*, Dewar Finlay, James McLaughlin, Johnny Moore, Andrew Nesbit, Mark S Spence, Emanuele Trucco, Ruixuan Wang, Tara Moore

139-206 Photoplethysmography-based Noninvasive and Continuous Blood Pressure Estimation by Artificial Neural Network
Tsai- weng Shih*, Hung-Wen Chiu

140-293 A Practical Noise Stress Test to Assess Performance of Automated Photo-plethysmogram Analysis
Reza Firoozabadi*, Saeed Babaeizadeh

141-408 Correlations of First and Second Heart Sounds with Age, Sex, and BMI
Bjarke Skogstad Larsen*, Simon Winther, Morten Bψttcher, Johannes Struijk, Samuel Emil Schmidt

142-139 Imaging Photoplethysmography: a Real-time Signal Quality Index
Sibylle Fallet*, Yann Schoenenberger, Lionel Martin, Fabian Braun, Virginie Moser, Jean-Marc Vesin

143-140 Wearable Pressure Sensor Array for Health Monitoring
Matti Kaisti*, Joni Leppδnen, Olli Lahdenoja, Pekka Kostiainen, Mikko Pδnkδδlδ, Ulf Meriheinδ, Tero Koivisto

Tuesday, September 26, 2017 **12:30**

P67 **Modelling Therapy**

Room: Rooms 1-4

144-283 Study of the Behavior of Different Guidewire Shapes in a Patient-Specific Numerical Model for Transcatheter Aortic Valve Implantation

Phuoc Vy*, Vincent Auffret, Miguel Castro, Pierre Badel, Michel Rochette, Pascal Haigron, Stıphane Avril, Hervı Le Breton

145-400 Computer Modeling of Irrigated-tip Electrodes During RF Cardiac Ablation: Comparative Analysis between Including and Excluding the Problem of Fluid Dynamics

Ana Gonzαlez-Suαrez*, Juan J. Pırez, Enrique Berjano

146-273 Dual Extruder 3D-Bioprinter for Computer Designed Cardiac Structures

Ana Maria Sanchez de la Nava*, Alejandro Liberos, Ismael Hernαndez-Romero, Marva Eugenia Fernαndez-Santos, Felipe Atienza, Andreu M. Climent, Francisco Fernαndez-Avilıs

Tuesday, September 26, 2017 **12:30**

P68 **Heart Rate Variability in Applications**

Room: Rooms 1-4

147-470 Heart Rate Dynamics with the Applications into a Quantitative Evaluation of Improvements on Cardiac Stress Endurance after High Intensity Interval Training in Healthy Men

Szi-Wen Chen*, Jiunn-Woei Liaw, Burt Chang

148-302 Nonlinear Heart Rate Variability Measures During the Oral Glucose Tolerance Test

Gilberto Perpipan, Erika Severeyn, Sara Wong*, Miguel Altuve

149-339 Analysis of Heart Rate Variability Indices after Selective Acute Atrial Ischemia in Humans

Pedro Gomis*, Jesïs Alvarez-Garcva, Pere Caminal, Juan Cinca

150-161 The Effect of Haloperidol Administration on Heart Rate Variability in Isolated Heart of Schizophrenia-like and Control Rats

Oto Janousek, Tibor Stracina, Marina Ronzhina, Jakub Hejc, Tibor Stark, Jana Ruda, Vincenzo Micale, Jana Kolarova, Marie Novakova, Ivo Provaznik*

151-256 Nonlinear Effects of Winter Swimming and Sauna Recreational Activities on the Heart Rate Variability

Ilya Potapov*, Samuli Haverinen, Jari Viik, Esa Rδsδnen

152-183 Analysis in Cardiac Stability over Thirty Minute Periods

Masaki Hoshiyama*, Alan Murray

153-420 Effects of Respiratory-Gated Auricular Vagal Nerve Stimulation (RAVANS) on Nonlinear Heartbeat Dynamics of Hypertensive Patients

Ronald Garcia, Roberta Sclocco, Aileen Gabriel, Gaetano Valenza, Vitaly Napadow, Riccardo Barbieri*

154-409 A Universal Method to Control Over-time Alterations of Respiratory Sinus Arrhythmia in Short and Long Signals

Iga Grzegorczyk*, Jan Gierałtowski, Paweł Krzesiński, Jan Żebrowski

155-221 The Phenomenon of Synchronization between Cardiac, Respiratory and Locomotor Rhythms
Judyta Salamon*, Teodor Buchner

156-368 Influence of Snack Intake on Cardiac Autonomic Nervous System in Patients with Type 2 Diabetes
Saman Parvaneh*, Amir Abdolahi, Mehrnoosh Arafati, Faezeh Naderi

157-167 Instantaneous Assessment of Hedonic Olfactory Perception Using Heartbeat Nonlinear Dynamics: a Preliminary Study
Alberto Greco, Mimma Nardelli, Antonio Lanata, Maria Sole Morelli, Fabio Di Francesco, Enzo Pasquale Scilingo, Riccardo Barbieri, Gaetano Valenza*

158-398 Diagnosis of Sleep Apnea by Evaluating Points Distribution in Poincare Plot of RR Intervals
Shahab Rezaei, Sadaf Moharreri, Saman Parvaneh, Shadi Ghiasi*

Tuesday, September 26, 2017 **12:30**

P69 **Challenge Posters I**

Room: Rooms 1-4

159-327 Complexity Measurements of Cardiac Rhythms for the Detection of Atrial Fibrillation

Shadi Ghiasi*, Mostafa Abdollahpur, nasimalsadat madani, Ali Ghaffari

160-246 Atrial Fibrillation Classification Using Signal Quality Index and Convolutional Neural Networks

Saman Parvaneh*, Jonathan Rubin, Rahman Asif, Bryan Conroy, Saeed Babaeizadeh

161-460 Cardiac Arrhythmia Detection from ECG Combining Convolutional and Long Short-Term Memory Networks

Philip Warrick*, Masun Nabhan Homsi

162-294 Combining Multi-source Features and Support Vector Machine for Heart Rhythm Classification

Chengyu Liu*, Qiao Li, Pradyumna B Suresha, Gari Clifford

163-226 Atrial Fibrillation Detection Using Convolutional Neural Networks and Dictionaries

Sandeep Chandra Bollepalli*, S Sastry Challa, Soumya Jana

164-301 Robust Feature Extraction from Noisy ECG for Atrial Fibrillation Detection

Octavian Lucian Hasna*, Rodica Potolea

165-56 Rhythm and Quality Classification from Short ECGs Recorded using a Mobile Device

Joachim A. Behar*, Aviv Rosenberg, Yael Yaniv, Julien Oster

166-54 Arrhythmia Classification from the Abductive Interpretation of Short Single-lead ECG Records

Tomas Teijeiro*, Constantino A. Garcia, Paulo Fılix

167-129 End-to-end Recognition of Atrial Fibrillation in EKG with Deep Convolutional Neural Networks

Awni Hannun*, Sudnya Diamos, Pranav Rajpurkar

168-163 Fusing QRS Detection and Robust Interval Estimation with a Random Forest to Classify Atrial Fibrillation
Christoph Hoog Antink*, Steffen Leonhardt, Marian Walter

169-168 ECG Classification Based on Time and Frequency Domain Features Using Random Forrests
Martin Kropf*, Dieter Hayn, Gónter Schreier

170-313 Detection of Atrial Fibrillation Episodes from Short Single Lead Recordings by Means of Ensemble Learning
Pietro Bonizzi, Kurt Driessens, Joel Karel*

171-101 Spectral and Temporal Variability Analysis and Classification for Atrial Fibrillation and Other Arrhythmias, using Quadratic SVM Classifier
Vadim Gliner*, Yael Yaniv

172-325 AF Detection and ECG Classification based on Long-Short Term Memory Neural Networks
Mohamed Limam*, Frederic Precioso

173-200 SVM Based ECG Classification Using Rhythm and Morphology Features, Cluster Analysis and Multilevel Noise Estimation
Radovan Smvšek, Jakub Hejč, Marina Ronzhina, Andrea Němcovα, Lucie Maršανovα, Jiřv Chmelvk, Jana Kolářovα, Ivo Provaznvk, Lukαš Smital, Martin Vvtek*

174-154 A Robust AF Classifier using Time and Frequency Features from Single Lead ECG Signal
Shreyasi Datta*, Chetanya Puri, Ayan Mukherjee, Rohan Banerjee, Anirban Dutta Choudhury, Arijit Ukil, Soma Bandyopadhyay, Arpan Pal, Sundeep Khandelwal

175-192 AF Classification from ECG Recording Using Feature Ensemble and Sparse Coding
Bradley Whitaker*, Muhammed Rizwan, Burak Aydemir, David Anderson

176-21 Multi-parametric Analysis for Atrial Fibrillation Classification in the ECG
Ivaylo Christov, Vessela Krasteva*, Iana Simova, Tatyana Neycheva, Ramun Schmid

177-132 Classification of Atrial Fibrillation Using Convolutional Neural Network Trained with Semi-Supervised Learning
Dylan Richards*, Kevin Rose, Matt Pipke

178-237 Single Lead ECG Classification of Atrial Fibrillation and Other Rhythms Using Statistical and Morphological Features with Bagging
Mohammed Baydoun*, Lise Safatly, Hassan Ghaziri, Ali El-Hajj

179-245 ENCASE: an ENsemble ClASsifiEr for ECG Classification Using Expert Features and Deep Neural Networks
Shenda Hong*, Meng Wu, Yuxi Zhou, Qingyun Wang, Junyuan Shang, Hongyan Li, Junqing Xie

180-403 Cardiac Rhythm Classification from a Short Single Lead ECG Recording via Random Forests
Ruhi Mahajan, Rishikesan Kamaleswaran, Oguz Akbilgic*

181-102 Diagnosis of AF Based on Time and Frequency Features by using a Hierarchical Classifier
Yang Liu*, Kuanquan Wang, Qince Li, Runnan He, Yong Xia, Henggui Zhang

182-145 Discontinuous Conduction through the Heterogeneous Purkinje-Ventricular Junction under the Short QT Syndrome Variant 3
Cunjin Luo, Kuanquan Wang, Henggui Zhang, Yang Liu*, Yong Xia

Tuesday, September 26, 2017 **12:30**

P6A **Previous Challenges**

Room: Rooms 1-4

183-178 Noise Resistance of Several Top-Scored Heart Beat Detectors

Marcus Vollmer*

184-281 A Data-Driven Feature Extraction Method for Enhanced Phonocardiogram Segmentation

Francesco Renna*, Jorge Oliveira, Miguel Coimbra

185-330 Nonlinear Analysis of Heart Sounds for the Detection of Cardiac Disorders Using Recurrence Quantification Analysis

Shadi Ghiasi, Mostafa Abdollahpur*, Ali Ghaffari

186-377 Reducing False Arrhythmia Alarms of Patient Monitoring Systems in the Intensive Care Units

Erdem Yanar*, Yesim Serinagaoglu Dogrusoz

187-373 Prediction of Mortality in Intensive Care Unit of Hospitals Using Evidence Dempster-Shafer Theory

Ali Asghar Zarrabi Rad, Nader Jafarnia Dabanloo*, Gholamreza Attarodi, Keivan Maghooli

Tuesday, September 26, 2017 **14:45**

S71 **Imaging Cardiac Motion**

Chairs: Soo Kng Teo and Claudio Lamberti
Room: Room 102

188-19 3D Echocardiographic Optimization of Residual Native Myocardial Function in Patients with Left Ventricular Assist Devices

14:45-15:00 Diego Medvedofsky, Roberto Lang, Gabriel Sayer, Karima Addetia, Eric Kruse, Sirtaz Adatya, Gene Kim, Lynn Weinert, Megan Yamat, Nir Uriel, Victor Mor-Avi*

189-244 Realistic Ground Truth Sequences for Speckle Tracking Algorithms

15:00-15:15 Martino Alessandrini*, Brecht Heyde, Jan D'hooge

190-27 Evaluation the Myocardial Motion at Scar Locations using 4D MDCT Cardiac Images

15:15-15:30 Weichih Hu*, Hsuan-Ming Tsao

191-146 Comparison of Left Ventricular Curvedness Derived from CMR Imaging with the Wall Motion Score Index for Male Patients after First-time Myocardial Infarction

15:30-15:45 Soo Kng Teo*, Xiao Dan Zhao, Ru San Tan, Liang Zhong, Yi Su

192-279 The Differential Meaning of LV and LA Strains in Aortic Valve Stenosis: a Feature Tracking MRI Study

15:45-16:00 Jurtme LAMY*, Gilles Soulat, Morgane Evin, Khaoula Bouazizi-Verdier, Alain Giron, Alban Redheuil, Elie Mousseaux, Nadjia Kachenoura

Tuesday, September 26, 2017 **14:45**

S72 **Invasive Recordings and Atrial Fibrillation**

Chairs: Marianna Meo and Matthijs Cluitmans
Room: Amphi L

193-32 Comparative Study of Methods for Atrial Fibrillation Cycle Length Estimation in Fractionated Electrograms

14:45-15:00 Diego I Osorio*, Raul Alcaraz, Josı J Rieta

194-415 Phase Analysis of Endoatrial Electrograms for 3D Rotor Detection in Atrial Fibrillation

15:00-15:15 Maddalena Valinoti*, Francesca Berto, Martino Alessandrini, Roberto Mantovan, Axel Loewe, Olaf Doessel, Stefano Severi, Cristiana Corsi

195-344 Persistent Atrial Fibrillation Hierarchical Activation: from Highest DF Sites to Wave Fractionation at the Boundaries

15:15-15:30 Joyo Salinet*, Fernando Schlindwein, Peter Stafford, Tiago Almeida, Xin Li, Frederique Vanheusden, Maria de la Salud Guillem Sɑnchez, G. Andrı Ng

196-69 Spurious Rotor Detection during Atrial Fibrillation: Phase Singularities in Fact Reflect Blurred Conduction Block

15:30-15:45 Stef Zeemering*, Piotr Podziemski, Pawel Kuklik, Arne van Hunnik, Bart Maesen, Ulrich Schotten

197-321 Deterministic Structures in Fractionated Atrial Electrograms During Human Persistent Atrial Fibrillation

15:45-16:00 Tiago Almeida*, Fernando Schlindwein, Joyo Salinet, Xin Li, Gavin Chu, Jiun Tuan, Peter Stafford, G. Andrı Ng, Diogo Soriano

198-427 Level-set Method for Analysis of Optical Mapping Recordings of Atrial Fibrillation

16:00-16:15 Daniel Gurevich*, Conner Herndon, Ilija Uzelac, Flavio Fenton, Roman Grigoriev

Tuesday, September 26, 2017 **14:45**

S73 **ECG/EG-based Analysis**

Chairs: Valentina Corino and Julien Oster

Room: Amphi M

199-213 A Group LASSO Based Method for Automatic Physiological Rhythm Analysis

14:45-15:00 Rebeca Goya-Esteban*, Σscar Barquero-Pırez, Carlos Figuera, Arcadi Garcva-Alberola, Jose Luis Rojo-Alvarez

200-418 Effect of Extracellular Calcium Concentration on Controlling Cardiac Alternans

15:00-15:15 Shiuan-Ni Liang*, Pik-Yin Lai

201-124 Beyond HRV: Attractor Reconstruction for Early Detection of Sepsis and Changes in Contractility

15:15-15:30 Philip Aston*, Manasi Nandi, Mark Christie

202-136 A Predictive Patient Specific Model for the Human Atrium

15:30-15:45 Cesare Corrado, Steven Williams, Gernot Plank, Mark O'Neill, Steven Niederer*

203-31 A Fractionation-based Local Activation Wave Detector for Atrial Electrograms of Atrial Fibrillation

15:45-16:00 Diego I Osorio*, Raul Alcaraz, Josı J Rieta

Tuesday, September 26, 2017 **14:45**

S74 **Heart Rate Variability**

Chairs: Raquel Bailon and Virginie Le Rolle
Room: Room 103

204-166 Impact of Nonstationarities on Short Heart Rate Variability Recordings During Obstructive Sleep Apnea

14:45-15:00 Vlasta Bari*, Luca Faes, Davide Tonon, Beatrice De Maria, Giovanni Ranuzzi, Gianluca Rossato, Alberto Porta

205-288 Time-frequency Analysis of the Autonomic Response to Head-up Tilt Testing in Brugada Syndrome

15:00-15:15 Mireia Calvo*, Virginie Le Rolle, Daniel Romero, Nathalie Bιhar, Pedro Gomis, Philippe Mabo, Alfredo Hernαndez

206-286 Robust Pulse Rate Variability Analysis from Reflection and Transmission Photoplethysmographic Signals

15:15-15:30 Elena Peralta*, Jesus Lazaro, Eduardo Gil, Raquel Bailσn, Vaidotas Marozas

207-225 Comparison of Heart Rate Variability Assessment During Exercise from Polar RS800 and ECG

15:30-15:45 David Hernando*, Nuria Garatachea, Jose Antonio Casajïs, Raquel Bailσn

208-155 Effects of Pharmacological Compounds on Fractal Beat Rate Variability of Human Induced Pluripotent Stem Cell-Derived Cardiomyocytes

15:45-16:00 Jiyeong Kim*, Jukka Kuusela, Katriina Aalto-Setδlδ, Esa Rδsδnen

209-214 Analysis of Heart Rate Variability Influence on Heart Rate Turbulence Using Boosted Regression Trees in Heart Failure Patients

16:00-16:15 Σscar Barquero-Pιrez*, Sandra Cantero, Rebeca Goya-Esteban, Carlos Figuera, Arcadi Garcva-Alberoa, Jose Luis Rojo-Alvarez

Tuesday, September 26, 2017 **14:45**

S75 **Arrhythmias & Signal Processing**

Chairs: Daniel Guldenring and Riccardo Barbieri

Room: Amphi N

210-269 Evaluating the Risks of Arrhythmia through Big Data: Automatic Processing and Neural Networks to Classify Epicardial Electrograms

14:45-15:00 Carlos Ledezma*, Benjamin Kappler, Veronique Meijborg, Bas Boukens, Marco Stijnen, PJ Tan, Vanessa Diaz-Zuccarini

211-84 Atrial Fibrillation Detection using Stationary Wavelet Transform and Deep Learning

15:00-15:15 Yong Xia*, Naren Wulan, Kuanquan Wang, Henggui Zhang

212-260 Morphology Based Detection of Premature Ventricular Contractions

15:15-15:30 Rohit Hadia*, Daniel Guldenring, Dewar Finlay, Alan Kennedy, Ghalib Janjua, Raymond Bond, James McLaughlin

213-82 Computational Evaluation of Radiofrequency Catheter Ablation Settings for Variable Atrial Tissue Depth and Blood Flow Conditions

15:30-15:45 Desmond Dillon-Murphy, David Nordsletten, Navjeevan Soor, Henry Chubb, Mark O'Neill, Adelaide de Vecchi, Oleg Aslanidi*

214-185 Arrhythmia Classification in Long-Term Data Using Relative RR Intervals

15:45-16:00 Marcus Vollmer*

215-182 A 4 Lead Real Time Arrhythmia Analysis Algorithm

16:00-16:15 Jianwei Su, Jian Dai, Zehong Guan, Zehui SUN, Wenyu Ye, Cadathur Rajagopalan*

Tuesday, September 26, 2017 **16:30**

S81 **Cardiovascular Mechanics**

Chairs: Kouhyar Tavakolian and Dingchang Zheng
Room: Room 102

216-232 The Influence of Right Ventricular Afterload in Cardiac Resynchronization Therapy: a CircAdapt Study

16:30-16:45 Clemens Zeile*, Alexander Schmeisser, Thomas Rauwolf, Tobias Weber, Sebastian Sager

217-356 Model-based estimation of internal heart power in aortic valve disease patients.

16:45-17:00 Matthias Gsell*, Gernot Plank

218-421 Activation Dispersion: a New Method to Visualize and Quantify Ventricular Dyssynchrony

17:00-17:15 Jacob Melgaard*, Johannes Struijk, Jψrgen K Kanters, Peter L Sψrensen, Claus Graff

219-385 Novel Non-invasive Pressure-volume Loop Measurement for Local Pulse-wave Velocity Estimation

17:15-17:30 Ghalib Muhammad Waqas Janjua*, Dewar Finlay, Daniel Guldenring, Rohit Hadia, James Mclaughlin

220-36 Non-invasive Technique for Determining Local PWV in the Human Ascending Aorta

17:30-17:45 Madalina Negoita*, Alun D Hughes, Kim H Parker, Ashraf W Khir

Tuesday, September 26, 2017 **16:30**

S82 **Repolarization**

Chairs: Michele Orini and Juan Pablo Martinez

Room: Amphi L

221-85 T-Wave Alternans Identification in Direct Fetal Electrocardiography

16:30-16:45 Ilaria Marcantoni, Marica Vagni, Angela Agostinelli*, Agnese Sbrollini, Micaela Morettini, Luca Burattini, Francesco Di Nardo, Sandro Fioretti, Laura Burattini

222-241 Theoretical Assessment of a Repolarization Time Marker Based on the Intracardiac Bipolar Electrogram

16:45-17:00 Michele Orini*, Stefan van Duijvenboden, Neil Srinivasan, Malcolm Finlay, Peter Taggart, Pier Lambiase

223-9 T-wave Morphology Restitution Dependency with Heart Rate Range and Its Association with Sudden Cardiac Death in Chronic Heart Failure

17:00-17:15 Julia Ramvrez*, Michele Orini, Esther Pueyo, Pablo Laguna

224-107 Assessment of Spatial Heterogeneity of Ventricular Repolarization after Quinidine in Healthy Subjects

17:15-17:30 Valentina Corino*, Roberto Sassi, Luca Mainardi, Massimo Rivolta

225-392 The Effects of 0.67 Hz High-pass Filtering on the Spatial QRS-T Angle

17:30-17:45 Daniel Guldenring*, Dewar D Finlay, Alan Kennedy, Raymond R Bond, James McLaughlin

226-267 Comparison of ECG T-wave Duration and Morphology Restitution Markers for Sudden Cardiac Death Prediction in Chronic Heart Failure

17:45-18:00 Julia Ramvrez*, Michele Orini, Esther Pueyo, Pablo Laguna

Tuesday, September 26, 2017 **16:30**

S83 **Heart and Thorax Modelling**

Chairs: Mark Potse and Alan Murray

Room: Amphi M

227-58 Statistical Variations of Heart Orientation in Healthy Adults

16:30-16:45 Freddy Odille*, Shufang Liu, Peter van Dam, Jacques Felblinger

228-202 Solving Inaccuracies in the Heart Position and Orientation for Inverse Solution by Using Electrical Information

16:45-17:00 Miguel Rodrigo*, Andreu M. Climent, Alejandro Liberos, Ismael Hernαndez-Romero, Angel Arenal, Javier Bermejo, Francisco Fernandez-Aviles, Felipe Atienza, Maria de la Salud Guillem Sαnchez

229-432 Role of Myocardial Properties and Pacing Lead Location on ECG in Personalized Paced Heart Models

17:00-17:15 Konstantin Ushenin*, Arseniy Dokuchaev, Sonya Magomedova, Oleg Sopov, Vitaly Kalinin, Olga Solovyova

230-397 Investigating the Dependency of the QRS Complex with the MRI-based Heart/torso Geometries Using Personalised Computer Models

17:15-17:30 Ana Minchole*, Ernesto Zacur, Aurore Lyon, Rina Ariga, Valentina Carapella, Benjamin Villard, Hector Martinez-Navarro, Alfonso Bueno-Orovio, Vicente Grau, Blanca Rodriguez

231-112 Patient-specific Parameterization of Left-ventricular Model of Cardiac Electrophysiology using Electrocardiographic Recordings

17:30-17:45 Karli Gillette*, Anton Prassl, Jason Bayer, Edward Vigmond, Aurel Neic, Gernot Plank

232-449 A New, Low-Energy Defibrillation Strategy: Use of Multiple Electric Field Directions to Reshape Scroll Wave Filaments

17:45-18:00 Kayleigh Wheeler, Niels Otani*

Tuesday, September 26, 2017 **16:30**

S84 **Sleep Apnea**

Chairs: Alfredo Hernandez and Carolina Varon
Room: Room 103

233-447 Apneas, Chronic Intermittent Hypoxia and Heart Rate Rhythm: Physiology and Exploration (Clinical Talk)

16:30-17:00 Trang Nguyen Phuc Thu, Guy Carrault, Patrick Pladys, Alfredo Hernandez, Alain Beuchıe*

234-224 Assessing Cardiovascular Comorbidities in Sleep Apnea Patients Using SpO2

17:00-17:15 Margot Deviaene*, Carolina Varon, Dries Testelmans, Bertien Buyse, Sabine Van Huffel

235-188 Sleep Questionnaires in Screening for Obstructive Sleep Apnea

17:15-17:30 Joachim A. Behar*, Niclas Palmius, Jonathan Daly, Qiao Li, Fabiola Rizzatti, Lia Bittencourt, Gari D. Clifford

236-39 Instantaneous Time Course of Autonomic-Cardiovascular Response to Short-Term Hypoxia in Healthy Subjects: a Time-Frequency Analysis Approach

17:30-17:45 Salvador Carrasco-Sosa, Alejandra Guillın-Mandujano*

237-86 Overnight T-Wave Alternans in Sleep Apnea Patients

17:45-18:00 Laura Burattini*, Ilaria Ciotti, Michela D'Ignazio, Alessandro Miccoli, Angela Agostinelli, Agnese Sbrollini, Micaela Morettini, Francesco Di Nardo, Sandro Fioretti

Tuesday, September 26, 2017 **16:30**

S85 **ECG Analysis**

Chairs: Luca Mainardi and Fabienne Porèe
Room: Amphi N

238-33 Electrocardiographic P-wave Delineation Based on Adaptive Slope Gaussian Detection

16:30-16:45 Francisco Gonzαlez*, Raul Alcaraz, Josι J Rieta

239-179 AThrIA: a New Adaptive Threshold Identification Algorithm for Electrocardiographic P Waves

16:45-17:00 Agnese Sbrollini*, Sofia Mercanti, Angela Agostinelli, Micaela Morettini, Francesco Di Nardo, Sandro Fioretti, Laura Burattini

240-354 Modeling Cardiovascular Condition Evolution in Hypertensive Population Using Graph Signal Processing

17:00-17:15 Antonio G. Marques*, Cristina Soguero-Ruiz, Javier Ramos, Inmaculada Mora-Jimınez, Rebeca Goya-Esteban, Rafael Garcva-Carretero, Σscar Barquero-Pιrez

241-123 Quantification of hERG Block from the ECG

17:15-17:30 Brian Chiu*, Johan de Bie, David Mortara, Cristiana Corsi, Stefano Severi

242-159 ECG Artefact Detection Using Ensemble Decision Trees

17:30-17:45 Jonathan Moeyersons*, Carolina Varon, Dries Testelmans, Bertien Buyse, Sabine Van Huffel

243-3 Model-Based Delineation of Non-Equidistant ECG

17:45-18:00 Thomas Niederhauser*, Andreas Haeberlin, Barbara Jesacher, Andreas Fischer, Hildegard Tanner

Wednesday, September 27, 2017 **8:30**

S91 **ECG Imaging III**

Chairs: Maria Guillem and Rémi Dubois
Room: Amphi L

244-277 Spatial Distribution and Orientation of a Single Moving Dipole Computed in 12-Lead ECGs in a Healthy Population Using a Spherically Bounded Model

8:30-8:45 Vito Starc*, Cees A. Swenne

245-189 Influence of Body-Surface Geometry Accuracy on Noninvasive Reconstruction of Electrical Activation and Recovery in Electrocardiographic Imaging

8:45-9:00 Matthijs Cluitmans*, Paul Volders

246-40 How Accurately Can the Method of Fundamental Solutions Solve the Inverse Problem of Electrocardiology?

9:00-9:15 Peter Johnston*

247-303 ECG Imaging of Simulated Atrial Fibrillation: Imposing Epi-Endocardial Similarity Facilitates the Reconstruction of Transmembrane Voltages

9:15-9:30 Steffen Schuler*, Danila Potyagaylo, Olaf Doessel

248-215 Including a Priori Knowledge in the Solution of the Inverse Problem During Atrial Fibrillation

9:30-9:45 Victor Suarez-Gutiırrez, Miguel Angel Cαmara, Σscar Barquero-Pıez*, Ismael Hernαndez-Romero, Maria de la Salud Guillem Sαnchez, Andreu M. Climent, Felipe Alonso-Atienza, Carlos Figuera

Wednesday, September 27, 2017 **8:30**

S92 **Cardiac Mechanics & Heart Failure**

Chairs: Vincent Jacquemet and Axel Loewe
Room: Amphi M

249-198 The Effect of Mitochondria in Intracellular Calcium Dynamics in Cardiomyocytes: a Simulation Study

8:30-8:45 Ainhoa Asensio*, Jose M Ferrero

250-74 Ionic Modulation of Calcium Dynamics in Simulated Human Heart Failure

8:45-9:00 Maria Teresa Mora*, Jose M Ferrero, Beatriz Trenor

251-270 The Role of the Ina-Ik1 Complex on Human Ventricular Conduction Velocity

9:00-9:15 Peter Marinov*, Alfonso Bueno-Orovio, Blanca Rodriguez

252-453 Differential Responses to Beta-Adrenergic Stimulation in the Long QT Syndrome Type 1: Characterization and Mechanisms

9:15-9:30 David Adolfo Sampedro Puente*, Jesus Fernandez-Bes, Esther Pueyo

253-262 Investigation of the Presence and Mechanisms of Action Potential Alternans in Hypertrophic Cardiomyopathy

9:30-9:45 Aurore Lyon*, Ana Mincholι, Elisa Passini, Blanca Rodriguez

254-434 Calibration of the Passive Behavior of the Left Ventricle for Mechanical Heart Simulations

9:45-10:00 Lukas Baron*, Axel Loewe, Olaf Doessel

Wednesday, September 27, 2017 **8:30**

S93 **Databases & Algorithm Development**

Chairs: Dewar Finlay and John Wang

Room: Amphi N

255-209 L1 Penalized Cox Regression to Characterize Cardiovascular Events in Hypertensive Patients

8:30-8:45 Rafael Garcva-Carretero, Σscar Barquero-Pιrez*, Inmaculada Mora-Jimιnez, Cristina Soguero-Ruiz, Rebeca Goya-Esteban, Antonio G. Marques, Javier Ramos

256-164 Towards Heart Sound Classification without Segmentation using Convolutional Neural Network

8:45-9:00 Wenjie Zhang*, Jiqing Han

257-156 The Physionet QT Database: Study on the Reliability of P-wave Manual Annotations under Noisy Recordings

9:00-9:15 Francisco Gonzαlez*, Raul Alcaraz, Josι J Rieta

258-64 A Review of Basic Statistical Concepts used in Clinical Test Interpretation and Decision Support

9:15-9:30 John Wang*

259-52 Semi-Supervised One-Class Transfer Learning for Heart Rate Based Epileptic Seizure Detection

9:30-9:45 Thomas De Cooman*, Carolina Varon, Anouk Van de Vel, Berten Ceulemans, Lieven Lagae, Sabine Van Huffel

260-195 Semantic Biomarker Selection for Functional Genomics of Heart Failure Model Organisms

9:45-10:00 Ludwig Lausser*, Steffen Just, Wolfgang Rottbauer, Hans Kestler

Wednesday, September 27, 2017 **8:30**

S94 **Heart Rate Analysis**

Chairs: Jean-Marc Vesin and Alejandra Mandujiano
Room: Room 102

261-372 The Periodic Repolarization Dynamics Index Identifies Changes in Ventricular Repolarization Oscillations Associated with Music-Induced Emotions

8:30-8:45 Giuiano Cerruto*, Luca Mainardi, Srefan Koelsch, Michele Orini

262-475 Altered Central Cardiovascular Network Pattern in Neuropathological Disease – Application of the Three Dimensional High Resolution Joint Symbolic Dynamics

8:45-9:00 Steffen Schulz, Minia Ricoy Castro, Beatriz Giraldo, Jens Haueisen, Karl-Juergen Baer, Andreas Voss*

263-411 Inspiration and Expiration Dynamics in Acute Emotional Stress Assessment

9:00-9:15 Javier Milagro*, Eduardo Gil, Jorge Mario Garzσn Rey, Jordi Aguilσ, Raquel Bailσn

264-444 Intrapartum Fetal-State Classification Using Long Short-Term Memory Neural Networks

9:15-9:30 Philip Warrick*, Emily Hamilton

265-38 Types of Interference Effects on the Autonomic-Cardiovascular Response to the Simultaneous Performance of Active Orthostatic and Cold Face Tests

9:30-9:45 Salvador Carrasco-Sosa, Alejandra Guillιn-Mandujano*, Aldo R. Mejva-Rodrvguez

266-160 Removal of Respiratory Influences from Heart Rate During Emotional Stress

9:45-10:00 Carolina Varon*, Jesus Lazaro, Alberto Hernando Sanz, Alexander Caicedo, Sabine Van Huffel, Raquel Bailσn

Wednesday, September 27, 2017 **10:15**

SA1 **ECG in Exercise and Ischemia**

Chairs: Jean-Philippe Couderc and Johan DeBie
Room: Amphi L

267-80 ECG as a Tool to Estimate Potassium and Calcium Concentrations in the Extracellular Space

10:15-10:30 Nicolas Pilia*, Olaf Doessel, Gustavo Lenis, Axel Loewe

268-133 The STAFF III Database: ECGs Recorded During Acutely Induced Myocardial Ischemia

10:30-10:45 Juan Pablo Martvnez*, Olle Pahlm, Michael Ringborn, Stafford Warren, Pablo Laguna, Leif Sornmo

269-258 QRS Fragmentation Index as a New Discriminator for Early Diagnosis of Heart Diseases

10:45-11:00 Francisco-Manuel Melgarejo-Meseguer*, Mariela Salar-Alcaraz, Zaida Molins-Bordallo, Francisco-Javier Gimeno-Blanes, Estrella Everss Villalba, Jose-Antonio Flores-Yepes, Jose Luis Rojo-Alvarez, Arcadi Garcia-Alberola

270-24 Using Generalised Polynomial Chaos to Examine Various Parameters in a Half-ellipsoidal Ventricular Model of Partial Thickness Ischaemia

11:00-11:15 Barbara Johnston*, Peter Johnston

271-417 Detecting Ischemic Stress to the Myocardium Using Laplacian Eigenmaps and Changes to Conduction Velocity

11:15-11:30 Wilson Good*, Burak Erem, Jaume Coll-Font, Dana Brooks, Rob MacLeod

Wednesday, September 27, 2017 **10:15**

SA2 **Photoplethysmography & Sensor Technology**

Chairs: Eliasz Kantoch and Alan Kennedy

Room: Room 102

272-35 A Two Step Gaussian Modelling to Asses PPG Morphological Variability Induced by Psychological Stress

10:15-10:30 Swati Banerjee*, Raquel Bailσn, Jesus Lazaro, Vaidotas Marozas, Pablo Laguna, Eduardo Gil

273-329 Detecting Episodes of Brady- and Tachycardia Using Photo-plethysmography at the Wrist in Free-living Conditions

10:30-10:45 Alberto Bonomi, Linda M. Eerikδinen*, Fons Schipper, Ronald Aarts, Helma de Morree, Lukas Dekker

274-135 Impact of Mixed Media on Transfer Functions with a Pacemaker System for Estimation of RF Heating During MRI Scans

10:45-11:00 Xiaoyi Min*, Shiloh Sison

275-229 Pulse Photoplethysmography Derived Respiration for Obstructive Sleep Apnea Detection

11:00-11:15 Jesus Lazaro*, Eduardo Gil, Margot Deviaene, Raquel Bailσn, Dries Testelmans, Bertien Buyse, Carolina Varon, Sabine Van Huffel

276-197 Sleep Analysis Based on Inter-Beat-Interval Obtained from Photoplethysmogram

11:15-11:30 Shuli Eyal*, Anda Baharav

277-455 The Electrical Properties of Screen-Printed Ag/AgCl for ECG Monitoring

11:30-11:45 Alan Kennedy*, Dewar Finlay, Daniel Guldenring, Matthew Cutcliffe, Micheal Skillen, James McLaughlin

Wednesday, September 27, 2017 **10:15**

SA3 **Cardiovascular Responses**

Chairs: Willem Dassen and Ivo Provaznik

Room: Amphi M

278-152 Progressive Fetal Distress Estimation by Characterization of Fetal Heart Rate Decelerations Response Based on Signal Variability in Cardiotocographic Recordings.

10:15-10:30 Patricio Fuentealba*, Alfredo Illanes, Frank Ortmeier

279-165 Stratifying the Risk of Developing Atrial Fibrillation after Coronary Artery Bypass Graft Surgery Using Heart Rate Asymmetry Indexes

10:30-10:45 Giovanni Ranuzzi*, Vlasta Bari, Beatrice De Maria, Valeria Pistuddi, Marco Ranucci, Alberto Porta

280-454 Pulse Arrival Time Accurately Detects Pacing-Induced Mechanical Alternans

10:45-11:00 Stefan van Duijvenboden*, Nick Child, Ben Hanson, Jaswinder Gill, Peter Taggart, Michele Orini

281-341 Influence of U-shape Accelerations of Heart Rate on Very Low Frequency Band and Heart Rate Multifractality

11:00-11:15 Mateusz Soliński*, Jan Gierałtowski, Jan Żebrowski, Paweł Kuklik

282-141 Significant Physiological Features to Identify High Performance States

11:15-11:30 Marva Dolores Pelaez Coca*, Marva Teresa Lozano Albalate, Montserrat Aiger, Alberto Hernando, Eduardo Gil

283-333 Autonomic Nervous System Non-stationary Response to Hyperbaric Environments

11:30-11:45 Carlos Sɑnchez*, Marva Dolores Pelaez Coca, Marva Teresa Lozano Albalate, Alberto Hernando, Montserrat Aiger, Eduardo Gil

Wednesday, September 27, 2017 **10:15**

SA4 **Noninvasive Characterization of Atrial Fibrillation**

Chairs: Olivier Meste and José Millet Roig

Room: Amphi N

284-473 Targeted Cardio-respiratory Rhythms Monitoring Used as Decision Support System in Neonatology (Clinical Talk)

10:15-10:45 Patrick Pladys*, Guy Carrault, Alfredo Hernandez, Alain Beuchıe

285-242 Noninvasive Characterization of Short- and Long-Term Recurrence of Atrial Signals During Persistent Atrial Fibrillation

10:45-11:00 Pietro Bonizzi*, Stef Zeemering, Joλl Karel, Muhammad Haziq Kamarul Azman, Theo Lankveld, Ulrich Schotten, Harry Crijns, Ralf Peeters, Olivier Meste

286-91 P-wave Analysis in Paroxysmal Atrial Fibrillation Patients before and after Pulmonary Vein Isolation

11:00-11:15 Nuria Ortigosa*, Σscar Cano

287-191 A Patient-Specific Methodology for Prediction of Paroxysmal Atrial Fibrillation Onset

11:15-11:30 Elisabetta De Giovanni*, Amir Aminifar, Adrian Luca, Sasan Yazdani, Jean-Marc Vesin, David Atienza

288-87 Preliminary Results from Clinical Validation Study of a Method for Non-Invasive Assessment of Atrioventricular Node Refractoriness During Atrial Fibrillation

11:30-11:45 Frida Sandberg*, Valentina Corino, Leif Sornmo, Pyotr Platonov, Fredrik Holmqvist

Wednesday, September 27, 2017 **12:00**

PB1 **Cardiovascular Imaging**

Room: Rooms 1-4

289-148 Characterization of Hypertrophic Cardiomyopathy Using Left Ventricular Regional Wall Thickness Derived from CMR Imaging

Soo Kng Teo*, Xiao Dan Zhao, Ru San Tan, Liang Zhong, Yi Su

290-285 Lumen Border Segmentation at Intravascular Ultrasound Images Using Fuzzy Compound Approach

Mehdi Eslamizadeh, Gholamreza Attarodi*, Nader Jafarnia Dabanloo, Javid Farhadi Sedehi, Seyed Kamaledin Setarehdan

291-319 Intravascular OCT Artifact Removal by Means of Clustering/Markov Model

Shahrzad Shariati, Arash Taki*, Ali Pourmodheji

Wednesday, September 27, 2017 **12:00**

PB2 **Cardiovascular Mechanics**

Room: Rooms 1-4

292-106 Impact of Interventricular Lead Distance on Cardiac Resynchronization Therapy Outcomes.
Tatiana Chumarnaya*, Maria Trifanova, Tamara Lyubimtseva, Viktoria Lebedeva, Dmitry Berdov, Maria Trukshina, Dmitry Lebedev, Olga Solovyova

293-130 Experimental Method for Registering Epicardium Potentials and Myocyte Shortening
Gustavo Shimabukuro Marchini*, Daniel Seiei Uehara Tamashiro, Ismar Newton Cestari, Idαgene Aparecida Cestari

294-342 Changes in the Spatial Angle And/or Ventricular Gradient after Myocardial Infarction Imply Progression towards Heart Failure
Marjolein C. De Jongh, Sumche Man, Arie C. Maan, Enno T. Van der Velde, Cees A. Swenne*

295-442 Analysis of Hemodynamic Related Changes in High Frequency Content of QRS Complex in Working Isolated Rabbit Heart
Petra Novotna*, Jakub Hejc, Marina Ronzhina, Oto Janousek, Tibor Stracina, Veronika Olejnickova, Jana Kolarova, Marie Novakova

296-323 Application of Cardiac Impedance Signal in the Reservoir-Wave Model of Circulatory System in Humans
Marek Żyliński*, Wiktor Niewiadomski, Marta Sadowiec, Marcel Młyńczak, Gerard Cybulski

297-234 Central Hemodynamic Variability During Sleep in Subjects with and without Atrial Fibrillation
Michał Sitarek, Gerard Cybulski*

Wednesday, September 27, 2017 **12:00**

PB3 **ECG Miscellaneous**

Room: Rooms 1-4

298-332 Human Activity Recognition for Physical Rehabilitation Using Wearable Sensors Fusion and Artificial Neural Networks
Eliasz Kantoch*

299-134 Biometrics via Spatial P-QRS-T Loop Features: Effect of Different VCG Transformations
Vessela Krasteva*, Irena Jekova, Ramun Schmid

300-171 Automatic Registration of 3D Camera Recording to Model for Leads Localization
Samir Alioui*, Martim Kastelein, Eelco van Dam, Peter van Dam

301-222 An ECG Web Services Portal for Standard and Serial ECG Analysis with Enhanced 3D Graphical Capabilities
Jocelyne Fayn*, Paul Rubel

302-208 Novel Algorithm for Estimating ST-segment Parameters
Sergey Akulov*, Aleksandr Fedotov

303-394 Electrophysiological Effects on Renal Ischaemia/Reperfusion-Induced Cardiac Hypertrophy
Karine Panico*, Giovanni Weber, Marcela S. Carneiro-Ramos, Joγo Salinet

304-42 Ventricular Repolarization Variation
Di Lu*

305-393 Beat-to-beat T-peak-T-end Interval Duration Variability Assessed by RR-Interval Histogram Analysis in Healthy Sedentary and Athlete
Olivassı Nasario-Junior, Paulo Roberto Benchimol-Barbosa, Jurandir Nadal*

306-443 Estimation and Removal of T Wave Component in Atrial Flutter ECG Using Least Square Polynomial Estimation to Aid Non-Invasive Localization of Ectopic Source
Muhammad Haziq Kamarul Azman*, Kushsairy Kadir, Decebal Gabriel Latcu, Olivier Meste

307-67 Quantitative Measurement of Respiratory Split in the Second Heart Sound
Hong Tang*, Huaming Chen, Ting Li

308-390 Heart Rate Recovery in Brugada Syndrome: a Bi-exponential Approach for Assessing Parasympathetic Reactivation after Submaximal Exercise
Daniel Romero*, Nathalie Behar, Philippe Mabo, Alfredo Hernandez

Wednesday, September 27, 2017 **12:00**

PB4 **Ventricular Modelling**

Room: Rooms 1-4

309-174 Intracellular Calcium Regulation in Canine Ventricular Myocytes: a Simulation Study

Estefania Renu, Jose M Ferrero*

310-50 Effects of Small Conductance Calcium Activated Potassium Channels in Cardiac Myocytes.

Angelina Peραranda*, Blas Echebarria, Enrique Alvarez-Lacalle, Inmaculada R. Cantalapiedra

311-340 Dimension Reduction for the Emulation of Cardiac Electrophysiology Models for Single Cells and Tissue

Brodie Lawson*, Chris Drovandi, Pamela Burrage, Blanca Rodriguez, Kevin Burrage

312-147 Effects of Quinidine on Short QT Syndrome Variant 2 in the Human Ventricles: a Modelling Study

Cunjin Luo, Kuanquan Wang, Henggui Zhang, Yang Liu*, Yong Xia

313-412 Ranolazine Attenuates Stretch-induced Modifications of Electrophysiological Characteristics in HL-1 Cells

Irene Del-Canto, Lidia Gomez-Cid, Ismael Hernandez-Romero, Marva S Guillem, Maria Eugenia Fernαndez-Santos, Felipe Atienza, Luis Such, Francisco Fernαndez-Avilιs, Francisco J Chorro, Andreu M Climent*

314-25 One-dimensional Simulation of Alternating Conduction under Hyperkalaemic Conditions

Jiaqi Liu*, Yuan Gao, Yinglan Gong, Ling Xia, Wenlong Xu, Mingfeng Jiang, Gangmin Ning

315-264 A Big Data Approach to Myocyte Membrane Analysis: Using Populations of Models to Understand the Cellular Causes of Heart Failure

Carlos Ledezma*, Benjamin Kappler, Veronique Meijborg, Bas Boukens, Marco Stijnen, PJ Tan, Vanessa Diaz-Zuccarini

316-297 Estimation of Purkinje Myocardial Junctions from Noisy Ventricular Electrical Samples
Fernando Barber, Miguel Lozano, Ignacio Garcia, Rafael Sebastian*

317-92 Modelling Stochastic Calcium Waves in Cardiac Myocytes Based on the Two-Pool CICR Model
Serife Arif*, Choi-Hong Lai, Nadarajah Ramesh

PB5 **Heart Rate Variability**

Room: Rooms 1-4

318-401 Emotion Recognition Using Parabolic Phase Space Mapping of Heart Rate Variability Signal
Shahab Rezaei*, Sadaf Moharreri, Saman Parvaneh

319-457 Changes of Permutation Pattern Entropy and Ordinal Pattern Entropy During Three Emotion States: Natural, Happiness and Sadness
Yirong Xia*, Licai Yang, Hongyu Shi, Yuan Zhuang, Chengyu Liu

320-93 Respiration-Guided Analysis of Pulse and Heart Rate Variabilities for Acute Emotional Stress Assessment
Jorge Mario Garzσn Reу*, Jesus Lazaro, Javier Milagro, Eduardo Gil, Jordi Aguilo, Raquel Bailσn

321-334 Linking Changes in Heart Rate to Mood Changes in Daily Life
Oliver Carr*, Fernando Andreotti, Kate Saunders, Amy Bilderbeck, Guy Goodwin, Maarten De Vos

322-369 Heart Rate Asymmetry in Response to Colored Light
Saman Parvaneh*, Nader Jafarnia Dabanloo, Shahab Rezaei, Sadaf Moharreri, Nima Toosizadeh

323-395 New Feature Set for Better Representation of Dynamic of RR Intervals in Poincare Plot
Sadaf Moharreri, Nader Jafarnia Dabanloo, Shahab Rezaei, Saman Parvaneh*

324-378 Using Distances to Classify Recordings of Young and Elderly Subjects
Stavroula Vlachothanasi, George Manis*

Wednesday, September 27, 2017 **12:00**

PB6 **Blood Pressure**

Room: Rooms 1-4

325-4 Non-Invasive Detection of Intracranial Hypertension using Random Forests
Federico Wadehn*, Thomas Heldt, Dario Walser, Marek Czosnyka, Michal Bohdanowicz

326-370 Comparison of Systolic Period Duration Using Aortic Flow or Pressure Based Methods in Anesthetized Patients
Arthur Le Gall*, Alexandre Laurin, Fabrice Vallee, Denis Chemla

327-471 Design and Implementation of a Non-invasive and Cuff-less Blood Pressure Monitoring System
Seyed Mohsen Anvari, Amir Hosein Keivanpour, Mojtaba Jafari Tadi*, Tero Koivisto, Mohammadreza Yazdchi

328-252 Pulse Interval Modulation-based Method to Extract the Respiratory Rate from Oscillometric Cuff Pressure Waveform during Blood Pressure Measurement
Yihan Gui, Fei Chen, Alan Murray, Dingchang Zheng*

329-65 Spatial Characterization of Hypertension Clusters using a Rural Australian Clinical Database
Rachel Whitsed, Ana Horta, Faezeh Marzbanrad*, Herbert F Jelinek

330-194 Characterization of a Carotid Distention Waveform from Audio Signals Acquired with a Stethoscope
Ivαn Maldonado Zambrano, Alfredo Illanes*, Axel Boese, Michael Friebe

331-121 Coupling Analysis for Systolic, Diastolic and RR Interval Time Series Using Multivariable Fuzzy Measure Entropy
Lina Zhao*, Shoushui Wei, Hong Tang, Chengyu Liu

332-351 Quantifying Alterations in the Dynamics of Blood Pressure Following Stroke Using Recurrence Quantification Analysis
Ajay Verma, Amanmeet Garg, Da Xu, Nandu Goswami, Andrew Blaber, Kouhyar Tavakolian*

Wednesday, September 27, 2017 **12:00**

PB7 **System Analysis in Fetal and Pre-term Populations**

Room: Rooms 1-4

333-349 Role of Individual Calf Muscles towards Blood Pressure Regulation: a Pilot Study

Ajay Verma, Da Xu, Amanmeet Garg, Malcom Tremblay, Andrew Blaber, Kouhyar Tavakolian*

334-75 Fetal Phonocardiogram Denoising by Wavelet Transformation: Robustness to Noise

Agnese Sbrollini*, Annachiara Strazza, Manila Caragiuli, Claudia Mozzoni, Selene Tomassini, Angela Agostinelli, Micaela Morettini, Sandro Fioretti, Francesco Di Nardo, Laura Burattini

335-298 Effect of Chronic Hypoxia on Autonomic Nervous System of Fetal Mice

Ahsan Khandoker*, Thuraia Al Khoori, Takahiro Minato, Takuya Ito, Yoshitaka Kimura

336-127 Algorithm for Risk Stratification of Preterm Infants

Venkata Naga Sai Apurupa Amperayani*, Premananda Indic, Colm Travers, Riccardo Barbieri, David Paydarfar, Namasivayam Ambalavanan

337-361 Quantification of Fetal ST-Segment Deviations

Angela Agostinelli*, Mariachiara Di Cosmo, Agnese Sbrollini, Luca Burattini, Micaela Morettini, Francesco Di Nardo, Sandro Fioretti, Laura Burattini

338-343 Analyzing Fetal and Maternal Cardiorespiratory Interactions During Labor

Faezeh Marzbanrad*, Gari Clifford

Wednesday, September 27, 2017 **12:00**

PB8 **Atrial Fibrillation**

Room: Rooms 1-4

339-240 Atrial Fibrillation (AF) Heart Rhythm Abnormality Diagnosis in ECG Signal Using Machine Learning Algorithms Based on Time and Frequency Domain Features

Mustafa Codur*, Emin Argun Oral, Ibrahim Yucel Ozbek

340-201 Classification of Atrial Fibrillation in Short-term ECG Recordings Using a Machine Learning Approach and Hybrid QRS Detection

Joanna Rymko, Mateusz Soliński*, Anna Perka, Jacek Rosiński, Michał Łepek

341-103 Experimental Study of Atrial Fibrillation Cycle Length During Rapid Atrial Septal Pacing

Adrian Luca*, Sasan Yazdani, Jean-Marc Vesin, Nathalie Virag

342-125 Spectral Analysis of the ECG to Guide Optimal Endpoint in Catheter Ablation of Atrial Fibrillation

Raul Alcaraz, Fernando Hornero, Josı J Rieta*

Wednesday, September 27, 2017 **12:00**

PB9 **Challenge Posters II**

Room: Rooms 1-4

343-47 Atrial Fibrillation Screening through Combined Timing Features of Short Single-Lead Electrocardiograms
Manuel Garcva, Juan Rɑdenas, Raul Alcaraz, Josı J Rieta*

344-131 Atrial Fibrillation Detection Using Feedforward Neural Networks and Automatically Extracted Signal Features
Santiago Jimınez-Serrano, Jaime Yagóe-Mayans*, Elena Simarro-Mondejar, Conrado J. Calvo, Francisco Castells, Josı Millet Roig

345-204 Atrial Fibrillation Classification Using Decision Tree
Minggang Shao*, Guangyu Bin, Jiao Huang, Haipeng Qin, Shuicai Wu

346-119 A Hierarchical Cardiac Rhythm Classification Methodology Based on Electrocardiogram Fiducial Points
Dionisije Sopic*, Elisabetta De Giovanni, Amir Aminifar, David Atienza

347-144 Detection of AF and Other Rhythms Using RR Variability and ECG Spectrum Measures
Lucia Billeci*, Franco Chiarugi, Magda Costi, David Lombardi, Maurizio Varanini

348-29 Arrhythmia Classification via Time and Frequency Domain Analyses of Ventricular and Atrial Contractions
Irena Jekova*, Todor Stoyanov, Ivan Dotsinsky

349-357 Combining Deep Learning and Feature-Based Classification to Detect Atrial Fibrillation from a Short ECG Recording
Matthieu Da Silva-Filarder*, Faezeh Marzbanrad

350-176 Can Supervised Learning Be Used to Classify Cardiac Rhythms?
Marcus Vollmer*, Neetika Nath, Leonard Caanitz

351-295 Identification of AF and Other Cardiac Arrhythmias from a Single-lead ECG Using Gaussian Processes
Maria Tziakouri*, Constantinos Pitris, Christina Orphanidou

352-105 Automated Detection of Atrial Fbrillation using Fourier-Bessel expansion and Teager Energy Operator from Electrocardiogram Signals
Shivnarayan Patidar*, Ashish Sharma, Niranjan Garg

353-114 Atrial Fibrillation Classification from a Short Single Lead ECG Recording by using a Combination of Convolutional and Long-Short Term Memory Neural Networks
Vykintas Maknickas*, Algirdas Maknickas

354-472 Feature Selection for the Classification of Atrial Fibrillation Based on Entropy Measurements
Pedro Quintana-Morales*, Antonio G. Ravelo-Garcva, Eduardo Hernαndez-Pırez, Sofva Martvn-Gonzαlez, Juan L. Navarro-Mesa

355-199 Detection of Atrial Fibrillation Using Tensors
Griet Goovaerts*, Martijn Boussı, Otto Debals, Lieven De Lathauwer, Sabine Van Huffel

356-216 AF Detection with Atrial and Ventricular-based Features Using Machine Learning
Pedro Alvarez, Josı Sαnchez, Andreu M. Climent, Maria de la Salud Guillem Sαnchez*

357-335 Afib and Other Arrhythmia Classification Using Beats Directed Graph Path Searching
Cheng Shi*, Savio Monteiro

358-425 Atrial Fibrillation Classification from a Short Single Lead ECG Recording Using Hierarchical Classifier
Daniel Giaime, Erin Coppola, Nihar Vanjara, Prashnna Gyawali*, Linwei Wang

359-157 Electrocardiogram Classification -- a Human Expert Way
Heikki Vδδnδnen*, Jarno Mδkelδ

360-350 Classification of ECG Recordings with Neural Networks Based on Specific Morphological Features and Regularity of the Signal
Katarzyna Stępień, Iga Grzegorczyk*

361-386 Classification of AF from Short ECG Signal Using Statistical and Morphological Features
Ruhallah Amandi*, Mohammad Farhadi, A.J Zarrin

362-426 Atrial Fibrillation Classification Based on Delay Differential Equations
Clemens Zeile*, Florian Kehrle, Sebastian Sager

363-355 Identifying AF Using Classifier Selection and Multimodal Features Extracted from ECG
Thuy Pham, Nadi Sadr*, Asghar Tabatabaei Balaei, Rui Tang, Philip de Chazal, Alistair McEwan

Wednesday, September 27, 2017 **14:15**

SC1 **Challenge II**

Chairs: Gari Clifford and David Albert

Room: Amphi Louis Antoine

364-480 AF Classification from a Short Single Lead ECG Recording: the Physionet Computing in Cardiology Challenge 2017

14:15-14:30 Gari Clifford*

365-239 A Consensus Based Approach for Atrial Fibrillation Detection Using Heart Rate Variability, Morphology,and Signal Quality Metrics

14:30-14:45 Fernando Andreotti, Oliver Carr*, Marco A F Pimentel, Adam Mahdi, Maarten De Vos

366-352 Classification of Atrial Fibrillation Using Multidisciplinary Features and Gradient Boosting

14:45-15:00 Andrew Goodwin, Sebastian Goodfellow*, Danny Eytan, Robert Greer, Mjaye Mazwi, Peter Laussen

367-175 AF Classification Based on Bagging Neural Network

15:00-15:15 Jiayu Chen*, Stephen Redmond, Heba Khamis, Nigel Lovell

368-223 Beat by Beat: Classifying Cardiac Arrhythmias with Recurrent Neural Networks

15:15-15:30 Patrick Schwab*, Gaetano Claudio Scebba, Jia Zhang, Marco Delai, Walter Karlen

369-57 Automatic Detection of Atrial Fibrillation and Other Arrhythmias in Holter ECG Recordings using PQRS Morphology and Rhythm Features

15:30-15:45 Filip Plesinger*, Petr Nejedly, Ivo Viscor, Josef Halamek, Pavel Jurak

Wednesday, September 27, 2017 **14:15**

SC2 **Special Session: Clinical Guidelines in e-Health: Where do we stand?**

Chairs: Catherine Chronaki and Iana Simova

Room: Amphi L

370-362 eHealth Standards and Interoperability in Cardiology: the Role of Clinical Guidelines in Patient Summaries

14:15-14:35 Catherine Chronaki*

371-95 Remote ECG Interpretation: Guidelines and their Implementation

14:35-14:50 Iana Simova*, Milen Predovski, Ivaylo Christov, Dimitar Simov

372-55 Guidelines for Remote Telemonitoring of Implantable Devices

14:50-15:05 Polychronis Dilaveris*, Christos-Konstantinos Antoniou, Konstantinos Gatzoulis, Dimitrios Tousoulis

373-435 Early Supported Discharge for Stroke Patients: Where Do We Stand in Terms of Guidelines and Their Implementation

15:05-15:20 Silvina Santana*, Peter Langhorne

Wednesday, September 27, 2017 **14:15**

SC3 **Special Session: Electrocardiographic Imaging: Challenges in Clinical Evaluation and Validation**

Chairs: Linwei Wang and Dana Brooks

Room: Amphi M

374-477 Noninvasive Electrocardiographic Imaging: Touching Ground in Clinical Cardiology (Clinical Talk)

14:15-14:45 Paul Volders*, Matthijs Cluitmans

375-289 Overcoming Barriers to Quantification and Comparison of Electrocardiographic Imaging Methods: a Community-Based Approach

14:45-15:00 Jwala Dhamala*, Jaume Coll-Font, Jess Tate, Maria de la Salud Guillem Sαnchez, Dana Brooks, Linwei Wang, Rob MacLeod

376-97 Analyzing Source Sampling to Reduce Error in ECG Forward Simulations

15:00-15:15 Jess Tate*, Karli Gillette, Brett Burton, Wilson Good, Jaume Coll-Font, Dana Brooks, Rob MacLeod

377-217 Endocardial Mapping Validation of Non-invasive Estimation of Atrial Fibrillatory Drivers by Electrocardiophic Imaging

15:15-15:30 Miguel Rodrigo, Andreu M. Climent, Ismael Hernαndez-Romero, Mahmood Alhusseini, Christopher AB Kowalewski, Sanjiv M Narayan, Felipe Atienza*, Maria de la Salud Guillem Sαnchez

Wednesday, September 27, 2017 **14:15**

SC4 **Special Session: Understanding the Mechanisms of Atrial Fibrillation using Novel Computational Approaches**

Chairs: Jichao Zhao and Gunnar Seemann

Room: Room N

378-28 Stability of Conduction Patterns in Persistent Atrial Fibrillation

14:15-14:35 Pawel Kuklik*, Benjamin Schδffer, Ruken Φ Akbulak, Mario Jularic, Christiane Jungen, Jana Nuehrich, Niklas Klatt, Christian Eickholt, Christian Meyer, Stephan Willems

379-228 The Combination of Pulmonary Vein Electrophysiology and Atrial Fibrosis Determines Driver Location

14:35-14:50 Caroline Roney*, Jason Bayer, Rιmi Dubois, Marianna Meo, Hubert Cochet, Pierre Jaos, Edward Vigmond

380-410 The Efficacy of Class III Anti-arrhythmic Drug Action in 3D Canine Atrial Models: Is the blockade of IKCa pro- or anti-arrhythmic?

14:50-15:05 Marta Varela, Purwa Dar, Jules Hancox, Oleg Aslanidi*

381-371 A Computational Framework to Benchmark Basket Catheter Guided Ablation

15:05-15:20 Martino Alessandrini, Maddalena Valinoti, Axel Loewe, Tobias Oesterlein, Olaf Doessel, Cristiana Corsi, Stefano Severi*

Wednesday, September 27, 2017 **16:00**

MD **Closing Plenary**

Chairs: Guy Carrault and Willem Dassen

Room: Amphi Louis Antoine

382-59 The VED Meter - a New Tool to Measure the Ventricular Conduction Abnormalities in Heart Failure Patients (CTA Winner)

16:00-16:15 Filip Plesinger*, Pavel Jurak, Josef Halamek, Pavel Leinveber, Scott McNitt, Arthur J. Moss, Wojciech Zareba, Jean-Pilippe Couderc

383-384 Tolerance to Spikes: a Comparison of Sample and Bubble Entropy

16:15-16:30 George Manis*, Roberto Sassi

384-465 Localized Activation Delay Manifests as the Early Repolarization Pattern - a Simulation Study

16:30-16:45 Peter L Sψrensen*, Jacob Melgaard, Johannes Struijk, Kasper Sψrensen, Jψrgen K Kanters, Claus Graff

385-451 Effects of Fibroblasts on the Electrophysiology of Cardiomyocytes from Different Regions of the Human Atrium: a Simulation Study

16:45-17:00 Gunnar Seemann*, Eike M. Wólfers

Author Index

This index gives the abstract order of presentations by each author in the program so that you can easily locate the presentations of a given author in the Program Details section. This index does not refer to page numbers.

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