

CREATING THE BASIS
FOR TAILORED THERAPIES

9th TRM Forum on Computer Simulation of Cardiac Function

Lugano, December 4-5, 2017



From Model to Clinical Outcome

Sponsored by the Theo-Rossi-di-Montelera (TRM) Foundation
Forum Organizers: Nathalie Virag and Lukas Kappenberger

In collaboration with Center for Computational Medicine in Cardiology CCMC
(Rolf Krause, Angelo Auricchio and Frits Prinzen)

Università
della
Svizzera
italiana



SUNDAY DECEMBER 3, 2017

18h30-21h30 **Welcome Drink and Dinner at Villa Castagnola (Invitation only)**

MONDAY DECEMBER 4, 2017

08h30-09h00 **Welcome and Introduction**
Nathalie Virag (TRM Foundation)
Prof. Boas Erez (Rector at Università della Svizzera italiana)
Angelo Auricchio (Center for Computational Medicine in Cardiology)

THE ATRIA AND CARDIAC CONDUCTION



Atrial Modeling and Experimental Data

Session Chairs: Angelo Auricchio & Valeriya Naumova

- 09h00-09h20 **Simulated P wave morphology in the presence of epicardial-endocardial activation delay**
Vincent Jacquemet, Montreal, Canada
- 09h20-09h40 **Rotors' identified by phase analysis of atrial fibrillation electrograms detect conduction block rather than rotating wavefronts**
Uli Schotten, Maastricht, The Netherlands
- 09h40-10h00 **Clinical experience of assessment of atrial fibrillatory rate from surface ECG**
Pyotr Platonov, Lund, Sweden
- 10h00-10h15 **Moderated discussion**
- 10h15-10h45 **Coffee break**

Translating Atrial Models into Clinical Practice: Atrial Fibrillation

Session Chairs: Nathalie Virag & Uli Schotten

- 10h45-11h05 **Translating atrial models into clinical practice**
Natalia Trayanova, Baltimore, USA
- 11h05-11h25 **Clinical translation of cardiac atrial models**
Steven Niederer, London, UK
- 11h25-11h45 **Importance of 3D models for reliable assessment of AF mechanism**
Ali Gharaviri, Lugano, Switzerland
- 11h45-12h00 **Moderated discussion**
- 12h00-13h30 **Lunch break and Moderated Posters Session**

Translating Atrial Models into Clinical Practice: Mapping, ECG and Pharmacology

Session Chairs: Gunnar Seemann & Lukas Kappenberger

- 13h30-13h50 **Validation upside down – in-silico models to sound the potential and limitations of diagnostic tools: novel mapping catheters, automated signal analysis, and ECG markers**
Axel Loewe, Karlsruhe, Germany
- 13h50-14h10 **Atrial phenotype in patient with Brugada syndrome**
Giulio Conte, Lugano, Switzerland
- 14h10-14h30 **In silico trials for pharmacology**
Blanca Rodriguez, Oxford, UK
- 14h30-14h45 **Moderated discussion**
- 14h45-15h15 **Coffee break**

Cardiac Conduction and Nano-Scale Models

Session Chairs: Vittorio Limongelli & Jan Kucera

- 15h15-15h35 **Mapping the inner cities of the heart: from 3D nanoscopy to cell function**
Peter Kohl, Freiburg, Germany
- 15h35-15h55 **Quantification of cardiac conduction and repolarization reserves**
Ed Vigmond, Bordeaux, France
- 15h55-16h15 **From calcium activated cardiac cation channel to phenotype**
Lijo Ozhathil, Bern, Switzerland
- 16h15-16h30 **Moderated discussion**

16h30-18h30 **Special Event: Visit Piz Daint at Swiss National Supercomputing Centre (CSCS)**

18h30 **Bus transfer to dinner at Antica Osteria Del Porto (open to all participants)**

TUESDAY DECEMBER 5, 2017

- 08h30-08h40 **Welcome and Introduction**
Lukas Kappenberger (TRM Foundation)
Tiziano Moccetti (CardioCentro Ticino)

THE VENTRICLES AND WHOLE HEART



Ventricular Modeling and Experimental Data

Session Chairs: Rolf Krause & Natalia Trayanova

- 08h40-09h00 **Multi-scale models of ventricular remodeling**
Andrew McCulloch, San Diego, USA
- 09h00-09h20 **Mechanism of ventricular fibrillation in the human heart**
Igor Efimov, St Louis, USA
- 09h20-09h40 **Arrhythmogenic cardiomyopathy: integrating multiple experimentally-measured variables to understand sudden cardiac death in the young**
Mario Delmar, New York, USA
- 09h40-09h55 **Moderated discussion**
- 09h55-10h30 **Coffee break**

Translating Ventricular Models into Clinical Practice: Arrhythmia

Session Chairs: Peter Kohl & Andrew McCulloch

- 10h30-10h50 **Using personalized models of patient hearts to optimize arrhythmia diagnosis and therapy**
Hermenegild Arevalo, Oslo, Norway
- 10h50-11h10 **Fast and non-invasive personalized models for improved clinical outcome in heart failure and arrhythmias**
Maxime Sermesant, Nice, France
- 11h10-11h30 **T-wave morphology analysis adds diagnostic value for long QT syndrome**
Tammo Delhaas, Maastricht, The Netherland
- 11h30-11h45 **Moderated discussion**
- 11h45-13h00 **Lunch break and Posters**

Translation Ventricular Models into Clinical Practice: Cardiac Resynchronization Therapy

Session Chairs: Frits Prinzen & Ed Vigmond

- 13h00-13h20 **The use of electrical and mechanical measurements for scar detection**
Francesco Maffessanti, Lugano, Switzerland
- 13h20-13h40 **Prediction of outcome after cardiac resynchronization therapy: from simulation to clinical evaluation**
Joost Lumens, Maastricht, The Netherlands
- 13h40-14h00 **Clinical personalization of cardiac multiphysics models**
Gernot Plank, Graz, Austria
- 14h00-14h15 **Moderated discussion**
- 14h15-14h45 **Coffee break and Group picture**

In Silico Trials and Clinical Trials

Session Chairs: Blanca Rodriguez & Andrew Swift

- 14h45-15h05 **Multi-source data integration for atrial fibrillation risk prediction**
Renate Schnabel, Hamburg, Germany
- 15h05-15h25 **The Avicenna roadmap for in silico clinical trials**
Liesbet Geris, Leuven, Belgium
- 15h25-16h00 **In silico clinical trials: how can the TRM community contribute?**
Discussion moderated by Liesbet Geris

16h00-16h45 **20 Years of TRM Forum: Craig Henriquez & Nathalie Virag**

16h45-17h00 **Closing remarks and Outlook**
Lukas Kappenberger (TRM foundation)

18h30 **Meet in the lobby of Villa Castagnola for departure to dinner at Moncuchetto (invitation only)**

FACULTY

FORUM ORGANIZERS



Lukas Kappenberger
TRM Foundation



Nathalie Virag
TRM Foundation

LOCAL HOSTS



Angelo Auricchio
CCT Lugano, Switzerland



Frits Prinzen
Maastricht, The Netherlands



Rolf Krause
CCMC Lugano, Switzerland

RECTOR UNIVERSITÀ DELLA SVIZZERA ITALIANA



Boas Erez
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FACULTY



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Giulio Conte
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Tammo Delhaas
Maastricht, The Netherlands



Mario Delmar
New York, USA



Igor Efimov
St. Louis, USA



Liesbet Geris
Leuven, Belgium



Ali Gharaviri
Lugano, Switzerland



Craig Henriquez
Durham, USA



Vincent Jacquemet
Montreal, Canada



Peter Kohl
Freiburg, Germany



Jan Kucera
Bern, Switzerland



Vittorio Limongelli
Lugano, Switzerland



Axel Loewe
Karlsruhe, Germany



Joost Lumens
Maastricht, The Netherlands



Francesco Maffessanti
Lugano, Switzerland



Andrew McCulloch
San Diego, USA



Tiziano Moccetti
Lugano, Switzerland



Valeriya Naumova
Oslo, Norway



Steven Niederer
London, UK



Lijo Ozhathil
Bern, Switzerland



Gernot Plank
Graz, Austria



Pyotr Platonov
Lund, Sweden



Blanca Rodriguez
Oxford, UK



Renate Schnabel
Hamburg, Germany



Uli Schotten
Maastricht, The Netherlands



Gunnar Seemann
Freiburg, Germany



Maxime Sermesant
Nice, France



Andrew Swift
Sheffield, UK



Natalia Trayanova
Baltimore, USA

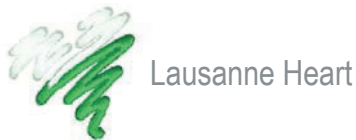


Edward Vigmond
Bordeaux, France

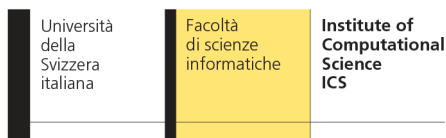
SPONSOR & FORUM ORGANIZERS

This Forum is sponsored by the Theo-Rossi-di-Montelera (TRM) Foundation, thanks to the generosity and "avant-garde" spirit of late Contessa Ida Rossi di Montelera.

It is organized by Prof. Lukas Kappenberger (president TRM foundation) and Dr. Nathalie Virag (member TRM foundation) from the Lausanne Heart Group.

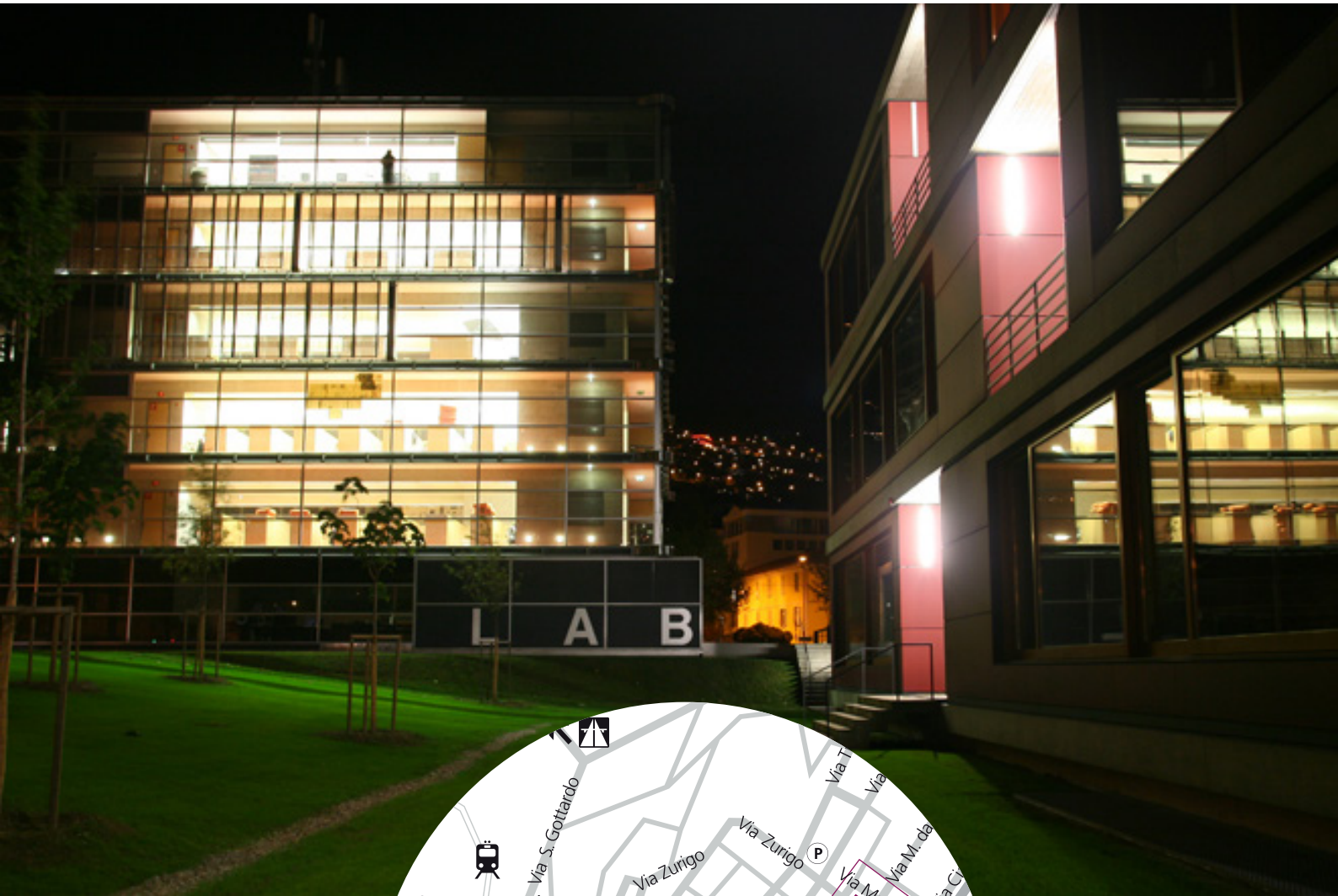


It is hosted by the Università della Svizzera Italiana (USI) and the Cardiocentro Ticino (CCT) and by The Center for Computational Medicine in Cardiology



VENUE

The TRM forum will be held in Lugano. Presentations and discussions will take place in the main lecture hall "Aula Magna" on the campus of USI, the Aula is a mostly underground structure illuminated through glass ceilings, adjacent to the University's main building.



HOTEL

Speakers will stay at the Grand Hotel Villa Castagnola. Walking from Villa Castagnola to USI takes 15-10 minutes.

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2015 EDITION



TRAVEL

BY AIR

Lugano has a small airport (located in Agno) with flights to Zürich and Geneva, among others. For international flights there is Milan Malpensa airport. It can be reached from Lugano in about 70 minutes by shuttle buses. The buses serve both terminals of Malpensa airport and stop at Lugano railway station. As a renovation of the railway station is taking place, the bus stop is presently located at the west side of the station near Piazzale di Besso. Other nearby airports are Bergamo and Milan Linate.

BY TRAIN

There are direct trains between Lugano and Milan (1 hour), Zürich (3 hours), and Basel (4 hours).

FROM THE RAILWAY STATION TO THE CITY/HOTELS/USI

From the railway station, the downtown area can be reached by the cable car (funicolare) or by city buses 2 (from the city side of the station) and 3 (from Piazzale di Besso). The university campus can be reached by city bus 6, which has its stop at the city side of the station. There is a taxi stand on the city side (southeast) of the railway station.



