## Session 1: Basic Requirements for Translation / UQSA

**09:00-10:00**  
**Keynote Lectures:** How to Deal with Uncertainties in Clinical Translation of Models  
Steven Niederer, King’s College London & Gary Mirams, University of Nottingham

**10:00-11:00**  
**Poster Teaser Presentations:**

1. **Maurice Hendrix** - Flexible code generation from CellML
2. **Andrew Foulkes** - Subcritical Hopf Bifurcations within FitzHugh-Nagumo
3. **Michael Moulton** - Low-order cardiac mechanics model: Application to benchmark problems
4. **Liam Murphy** - Aortic pressure estimation from peripheral artery measurements for use in cardiovascular models.
5. **Dominic Whittaker** - Rapid characterisation of R56Q mutant hERG channel kinetics using sinusoidal voltage protocols
6. **Michael Regnier** - The significance of two atoms: optimization of the actomyosin chemomechanical cycle by 2’-deoxy-ATP
7. **Sarah Kosta** - In silico analysis of the Frank-Starling mechanism and its relationship with vascular filling therapy
8. **Tim van Loon** - In silico mechanistic analysis of exercise intolerance in heart failure with preserved ejection fraction
9. **Emanuele Rondanina** - A 0-dimensional multi-scale model for left ventricular growth and hemodynamic feedback
10. **Michael Sacks** - Image-Based Simulation of Mitral Valve Repair Surgery for Predicting Patient-Specific Outcomes
11. **Michael Sacks** - Patient Specific Modeling of Left Ventricle with Mitral Valve: Insights into the role of Ischemic Regurgitation Induced by Myocardial Infarction
12. **Rachel Smith** - Incorporating pulse wave velocity into model-based pulse contour analysis method for estimation of cardiac stroke volume
13. **Beatriz Trenor** - Multiscale modeling of human heart failure to optimize treatments
14. **Erik Willemen** - Afterload dependence of left and right ventricular response to pacing delay optimization: a combined experimental-computational study
15. **Aurore Lyon** - Determinants of beat-to-beat left ventricular function during atrial fibrillation: a combined clinical-computational study
16. **Mehrdad Shahmohammadi** – A hemodynamics-driven mathematical model of the generation of heart sounds

**11:00-11:30**  
**Break and Poster Viewing**

**11:30-11:50**  
**Variability in patch-clamp data: biological variability or experimental artefacts?**  
Chon Lok Lei, University of Oxford
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| 11:50-12:10 | Predicting changes to $I_{Na}$ from SCN5A mutations: Can we prevent our knowledge of the sodium current getting lost in translation?  
**Michael Clerx, University of Oxford** |
| 12:10-12:30 | Parameter Subset reduction for patient-specific modelling of Arrhythmogenic Cardiomyopathy related mutation carriers in the CircAdapt model  
**Nick van Osta, Maastricht University** |
| 12:35-12:45 | Concluding Remarks |

**Session 2: Congenital Heart Disease**

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| 14:00-15:00 | Dutch Heart Foundation Lecture: It Takes Two To Tango: The Tale of a Pediatric Cardiac Surgeon and a Bioengineer  
**Andrew McCulloch, UC San Diego & Tain-Yen Hsia, Yale University** |
| 15:00-15:20 | T.B.A.  
**Leonid Goubergrits, Charite Berlin** |
| 15:20-15:40 | Simulating the cardiovascular fetal-to-neonatal transition in healthy and pathological conditions  
**Anneloes Munneke, Maastricht University** |
| 15:40-15:45 | Concluding Remarks |
| 15:45-16:15 | Break and Poster Viewing |
| 16:15-17:00 | Poster Teaser Presentations:  
1. **Jean Bragard** - Are high-resolution voltage maps a predictor tool in the treatment of atrial fibrillation?  
2. **Jordan Elliott** - An in silico study to determine the stability of the atrial model through the introduction of cell-to-cell variability.  
3. **Mohamadamin Forouzandehmehr** - Comparison between two mathematical contractile element models for hiPSC-CMs  
4. **Lian Laudy** - Computational modelling of calcium-dependent signalling pathways and their long-term effects on cardiac calcium handling and arrhythmogenesis  
5. **Kimberly McCabe** - A Multiscale Computational Model to Determine the effects of 2-deoxy-ATP on SERCA Pump Function  
6. **Jun-ichi Okada** - Investigation of the generation mechanism of line block in the non-contact mapping system using patient-specific heart simulator  
7. **Arkady Pertsov** - Realistic Simulation of Arrhythmia Onset and Drug Therapy  
8. **Stefano Severi** - A novel computational model of human ventricular action potential  
9. **Cristian Trovato** - Development and coupling of two novel human in silico ventricular and Purkinje models for investigation of pro-arrhythmia mechanisms across the Purkinje-Myocardial junction  
10. **Nele Vandersickel** - Evaluation of DG-mapping in (complex) Atrial Tachycardia  
11. **Nienke Juliëtte Verzaal** - Time course of repolarization changes after start of cardiac resynchronization therapy  
12. **Jae Boum Youm** - A computational study on the interatrial difference of rat in the arrhythmogenicity on sympathetic stimulation |
| 17:00-18:00 | Poster Session and Social Hour Drinks |
Friday, December 6, 2019

**Session 3: Heart Failure**

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| 09:00-10:00 | **Keynote Lectures:** Sarcomere Contraction and Heart Failure: On The Development of Thoughts and Models  
**Jolanda van der Velden, VUMC Amsterdam & Theo Arts, Maastricht University** |
| 10:00-10:20 | Exponentially increasing titin compliance in a novel mouse model attenuates the Frank-Starling mechanism but has a beneficial effect on diastole.  
**Henk Granzier, University of Arizona** |
| 10:20-10:40 | A Multiscale Model of Cardiac Remodeling under Pulmonary Arterial Hypertension: From Organ to Titin  
**Michael Sacks, University of Texas at Austin** |
| 10:40-11:10 | Break and Poster Viewing |
| 11:10-11:30 | Multiscale modeling of cardiovascular function predicts that the End-Systolic Pressure Volume Relationship can be targeted via multiple therapeutic strategies  
**Kenneth Campbell, University of Kentucky** |
| 11:30-11:50 | Effect of Infarct Stiffness on Left and Right Ventricular Remodeling: a Computational Study Based on Myocardial Mechano-Sensing  
**Tijmen Koopsen, Maastricht University** |
| 11:50-12:10 | T.B.A.  
**Yael Yaniv, Technion Israel** |
| 12:10-12:15 | Concluding Remarks |

**Session 4: Electrophysiology & Complex Arrhythmias**

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| 13:30-14:30 | **Keynote Lectures:** Novel Anti-Arrhythmic Therapy Development: Joint Venture of a Cardiologist and a Modeler  
**Felix Wiedmann, University of Heidelberg & Gunnar Seemann, University of Freiburg** |
| 14:30-14:50 | Modelling crosstalk between RyR and IP3R calcium release in cardiomyocyte growth signaling  
**Edmund Crampin, University of Melbourne** |
| 14:50-15:10 | Mechano-Electric Coupling and Arrhythmogenic Current Generation in a Computational Model of Coupled Myocytes  
**Viviane Timmermann, Simula Norway** |
| 15:10-15:30 | Study of His-bundle pacing using patient-specific multi-physics heart simulator  
**Jun-ichi Okada, University of Tokyo** |
| 15:30-16:00 | Break and Poster Viewing |
| 16:00-16:20 | Three-dimensional heart model–based screening of proarrhythmic potential by in silico simulation of action potential and electrocardiograms: verapamil and ranolazine vs. dofetilide  
**Chae Hun Leem, University of Ulsan** |
| 16:20-16:40 | A Clinical Ventricular Arrhythmia Simulation Framework May Require Personalization Beyond Scar Substrate  
**Matthijs Cluitmans, Maastricht University** |
<p>| 16:40-17:00 | T.B.A. |</p>
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<tr>
<td>17:00-17:20</td>
<td>Improving the clinical translation of simulation results by using patient-specific models to investigate arrhythmia mechanisms in infarct patients undergoing cardiac resynchronization therapy</td>
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<td><strong>Hector Martinez-Navarro, University of Oxford</strong></td>
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<td>17:20-17:40</td>
<td>Human in silico study of electrical phenotypes in Arrhythmogenic Cardiomyopathy explains variable disease manifestation on QRS morphologies</td>
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<td><strong>Caroline Mendonca Costa, King's College London</strong></td>
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<td>17:40-17:45</td>
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