

Programme

Moderation: David Matthews

Times Higher Education

Zurich Heart - An Answer to the Increasing Problem of Heart Failure in Western Populations

Volkmar Falk, Professor of Cardiovascular Surgery, German Heart Center Berlin

Zurich Heart - Thinking Out of the Box

Edoardo Mazza, Professor of Mechanics, ETH Zurich

Pitches - The Zurich Heart Stories of Young Scientists

- Marianne Schmid Daners, Institute of Design, Materials and Fabrication, ETH Zurich
- Panagiotis Pergantis, Department of Cardiothoracic and Vascular Surgery, German Heart Center Berlin
- Bente Thamsen, Institute of Design, Materials and Fabrication, ETH Zurich
- Lena Wiegmann, Institute of Physiology, University of Zurich
- Aldo Ferrari, Institute of Energy Technology, ETH Zurich
- Laura Bernardi, Institute for Mechanical Systems, ETH Zurich
- Raoul Hopf, Institute for Mechanical Systems, ETH Zurich
- Georgios Stefopoulos, Institute of Energy Technology, ETH Zurich

The Perspective of a Start-Up Company

Simone Bottan, CEO, Hylomorph AG

Q&A

Networking Reception



Zurich Heart

Wednesday, 1 November 2017

17.30 h

Musikbrauerei

Greifswalder Str. 23A, 10405 Berlin



In partnership with Hochschulmedizin Zürich, the University of Zurich and the German Heart Center Berlin.

Zurich Heart is a visionary interdisciplinary flagship project of the University Medicine Zurich (Hochschulmedizin Zürich). The project aims at developing a fully implantable artificial heart. In industrial nations, approximately 1-2% of the population suffers from severe heart failure summing up to 10 million people in Europe. Heart transplantation or the implantation of an artificial heart is the only treatment option for severe heart failure. Nearly 20 research groups of ETH Zurich, the University of Zurich, the German Heart Center Berlin and other partner institutions combine their synergies in a visionary approach to improve the contemporary ventricular assist devices. Innovative components for transcatheter energy supply, improved surface materials to avoid thromboembolic complications, highly efficient and adaptive regulation and sensor technology as well as soft materials will be the essence of the Zurich Heart.



Volkmar Falk is medical director and director of the Department of Cardiothoracic and Vascular Surgery of the German Heart Center Berlin and Chair of the Division of Cardiovascular Surgery at the Charité Berlin since 2014. He is author or co-author of over 500 scientific publications.

From 2009-2014, he was appointed professor at the University and director of the Department of Cardiovascular Surgery at the University Hospital in Zurich. During this time, he initiated the Zurich Heart project.



Edoardo Mazza has been Full Professor for Mechanics at ETH Zurich since 2010. He received his Dr. sc. techn. degree at ETH Zurich in 1997. He has then been working in industry until 2001. In 2002 he was appointed as Assistant Professor, in 2006 as Associate Professor at ETH Zurich. Since 2006 he also leads the laboratory "Mechanics for Modeling and Simulation" of the Empa. Mazza's research deals with experimental continuum mechanics, applied to biomedical and engineering materials.



Aldo Ferrari obtained his Biology degree at the Scuola Normale Superiore of Pisa, Italy where he was then admitted to the PhD school in Physics. After concluding his doctoral studies he moved to ETH Zurich, as PostDoc in Biochemistry and back again to Pisa as a Senior Scientist. Since 2011, he is group leader in the Laboratory of Thermodynamics in Emerging Technologies at ETH Zurich. He collaborates with the Zurich Heart Project and co-founded the start-up company Hylomorph AG.



Marianne Schmid Daners graduated in 2006 as a mechanical engineer and received her PhD in 2012 on the topic "Adaptive Shunts for Cerebrospinal Fluid Control" under the supervision of Prof. Guzzella, both at ETH Zurich. Currently, she leads the Biomedical Systems group of the Product Development Group Zurich and supports the project coordination of the Zurich Heart. Her main research interests are the modelling of biological systems and the development and control of biomedical devices.



Laura Bernardi was born in Italy and after her studies in Biomedical Engineering in Milan, she started a PhD program at ETH Zurich. Her work focuses on the mechanical characterization of materials for cardiovascular devices, and on the study of the interaction between synthetic substrates and endothelial cell monolayer upon exposure to flow and mechanical deformation. Her work is part of the "Zurich Heart" project of Hochschulmedizin Zürich



Raoul Hopf attended the high school in Bern and completed a "Typus C matura", which was centered around mathematics and physics. He obtained the bachelor and masters degrees in mechanical engineering

from ETH Zurich, with focus on continuum mechanics and numerical methods. He did his PhD in mechanical engineering at ETH Zurich. Currently, he is a postdoctoral researcher at ETH Zurich for the Zurich Heart project.



Panagiotis Pergantis has been working in the field of terminal heart insufficiency with a focus on VAD therapy and heart transplantation since 2013. He takes care of patients before LVAD implantation or heart transplantation and afterwards in the course of intensive and ambulant care. Since 2014, he is clinical consultant for the Zurich Heart project and researches in the field of physiological control for VADs.



Georgios Stefopoulos studied mechanical engineering at Aristotle University of Thessaloniki, Greece. He obtained a Dipl.-Ing. with honours. His diploma thesis work produced two conference publications. Wanting to utilize his engineering knowledge to improve hospitalized people's life quality, he started his PhD at ETH Zurich, where through interdisciplinary work he designs and fabricates novel biomaterials. His work is published in scientific journals covering advances in the biomedical sector.



Bente Thamsen was born in Braunschweig, Germany. She studied Physical Engineering at the Technical University of Berlin, specialising in Fluid Dynamics, Numerics and Simulation. She did her PhD at the Charité - Universitätsmedizin Berlin in the Biofluid Mechanics Laboratory on the development of a two-stage rotary blood pump with reduced blood trauma. In 2017, she moved to Zurich. Her research at ETH Zurich focuses on pump design, numerical simulation and blood trauma.



Lena Wiegmann started her PhD in 2014 after graduating from ETH Zurich with a master's degree in mechanical engineering. During her studies, she received a scholarship of the German National Academic Foundation and conducted research projects at Oxford and Harvard University. Within the Zurich Heart project, she works on the fluid dynamics and blood damage models. In general, her interest lies in the application of engineering solutions to solve current challenges in medicine.



Simone Bottan has an interdisciplinary education in Biomedical Engineering (MSc, Politecnico di Milan, 2008) and Mechanical Engineering (PhD, ETH Zurich, 2012). In 2013, he became recipient of the Pioneer Fellowship at ETH Zurich, with which he then co-founded Hylomorph AG in 2014 and joined Wyss Zurich for incubation as of 2015. Simone was awarded the Venture Leader 2015 and Venture Kick 2016 prizes.