1 Peer-reviewed Journal Articles

Forthcoming


1 Equal contributions by several authors are denoted by *. 

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2021


[j42] Gerach, T., Schuler, S., Fröhlich, J., Lindner, L., Kovacheva, E., Moss, R., Wülfer, E. M., See- 

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[j40] Sánchez, J., Trenor, B., Saiz, J., Dössel, O., and Loewe, A. “Fibrotic Remodeling during Persis- 
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Loewe, A. “Machine learning enables non-invasive prediction of atrial fibrillation driver location and acute 
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[j38] Nagel, C., Luongo, G., Azzolin, L., Schuler, S., Dössel, O., and Loewe, A. “Non-invasive and 
Quantitative Estimation of Left Atrial Fibrosis based on P waves of the 12-lead ECG - A Large-
scale Computational Study Covering Anatomical Variability”. Journal of Clinical Medicine 

Arentz, T., and Amir, J. “Non-invasive Body Surface Electrocardiographic Imaging for Diagno-
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M., Jori, M. C., Kulesza, A., Loewe, A., Neidling, M., Reiterer, M., Rousseau, C. F ., Russo, G., 
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Brain Hypothermia for Ischemic MCA-M1 Stroke: Influence of Cerebral Arterial Circulation in a 
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Prassl, A. J., Seemann, G., and Vigmond, E. J. “The openCARP Simulation Environment for 
Cardiac Electrophysiology”. Computer Methods and Programs in Biomedicine 2021;208:106223. 

[j32] Sánchez, J., Luongo, G., Nothstein, M., Unger, L., Saiz, J., Trenor, B., Luik, A., Dössel, O., and 
Loewe, A. “Using Machine Learning to Characterize Atrial Fibrotic Substrate from Intracardiac 

“Comparison of Unipolar and Bipolar Voltage Mapping for Localization of Left Atrial Arrhythmo-
genic Substrate in Patients with Atrial Fibrillation”. Frontiers in Physiology 2020;11:1461. DOI: 

and Loewe, A. “Mapping and Removing the Ventricular Far Field Component in Unipolar Atrial 
1109/TBME.2020.2973471.


2017


2016


2014


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2 Data & Software


3 Proceedings


Appel, S., Gerach, T., Dössel, O., and Loewe, A. “Adaptation of the Calcium-dependent Tension Development in Ventricular Cardiomyocytes”. In: Current Directions in Biomedical Engineering.


2019


2018


[p27] Dössel, O., Oesterlein, T., Unger, L., **Loewe, A.**, Schmitt, C., and Luik, A. “Spatio-temporal Analysis of Multichannel Atrial Electrograms Based on a Concept of Active Areas”. In: *EMBC 19 -
2017


4 Abstracts

2022


2021


2020


Open Sustainable Framework for Cardiac Electrophysiology Research”. In: *Virtual Physiological Human Conference (VPH).* 2020.

2019


[a28] Lehrmann, H., Jadidi, A., Minners, J., Chen, J., Müller-Edenborn, B., Weber, R., Dössel, O., Ar-  
etz, T., and Loewe, A. “Novel ECG-criteria For Real-time Assessment Of Anterior Mitral Line  
Block - "V1-jump" And "V1-delay"”. In: Heart Rhythm. Vol. 15. 39th Heart Rhythm Society's Sci-  
entific Sessions 2018. 5S. S229. DOI: 10.1016/j.hrthm.2018.03.025.

[a27] Lutz, Y., Loewe, A., Dössel, O., and Cattaneo, G. “Numerical model of brain and systemic  
temperature during local hypothermia for ischemic stroke treatment”. In: 15th Interdisciplinary  
Cerebrovascular Symposium. 2018.

[a26] Nothstein, M., Doessel, O., and Loewe, A. “Rotational activity around fibrotic tissue during Atrial  
Fibrillation”. In: Biomedizinische Technik / Biomedical Engineering. Vol. 63. BMT 2018 - 52th  
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undergoing hemodialysis”. In: Heart Rhythm. Vol. 15. 39th Heart Rhythm Society's Scientific  
Sessions 2018. 5S. S354–S355. DOI: 10.1016/j.hrthm.2018.03.026.

[a24] Loewe, A., Lutz, Y., Fabbri, A., and Severi, S. “Sudden cardiac death in hemodialysis patients:  
severe sinus bradycardia due to hypocalcaemia as a potential pathomechanism”. In: Bimedi-  
zinische Technik / Biomedical Engineering. Vol. 63. BMT 2018 - 52th Annual Conference of the  
German Society for Biomedical Engineering (VDE|DGBMT) 2018. S1. S185–S191. DOI:  


2017


5 Invited Talks


[15] Loewe, A. “Validation upside down - In-silico models to sound the potential and limitations of diagnostic tools”. In: TRM Forum 2017. Lugano, Switzerland.

2016 [14] Loewe, A. “Multiscale computational cardiology”. In: Computational Physiopathology Unit (Prof. Stefano Severi), University of Bologna 2016. Bologna, Italy.


### 6 Patents


### 7 Public Outreach / Popular Science


[o10] KIT im Rathaus. “Mein digitaler Zwilling: Welche Möglichkeiten eröffnen mathematische Computermodelle des Herzens für die Diagnose und Therapie von Herzkrankheiten?” YouTube 2022. URL: https://www.youtube.com/watch?v=iLL1XTmFFMc&list=PL0TmH52ybqIfnLU0b1TKz8qFcuEJyRNJk&index=3.

[o9] Renal Research Institute, Frontiers in Kidney Medicine and Biology. “What ECG can tell us about the events on a molecular scale”. YouTube 2022. URL: https://www.youtube.com/watch?v=g75n20vISMI.

8 Book Chapters and Monographs

Forthcoming


2022


2021


2016


2013


2010

[b1] Loewe, A. “Comparison of cardiac simulation tools regarding the modeling of acute ischemia”. Bachelor Thesis. Karlsruhe Institute of Technology (KIT).

9 Reviewer Activity

9.1 Funding Agencies

- Belgian Physical Society
- British Heart Foundation
- Czech Academy of Sciences, member of evaluation panel “Engineering and Technology”
- Deutsche Forschungsgemeinschaft
• Dutch Heart Foundation
• Dutch Research Council (NWO)
• Fondazione Leonardo
• Medical Research Council, United Kingdom
• Swiss National Science Foundation
• Wellcome Trust

9.2 Scientific Journals
• Annals of Biomedical Engineering (2019-20)
• Biomechanics and Modeling in Mechanobiology (2020)
• Biophysical Journal (2019)
• BMC Nephrology (2021)
• Cardiology Research and Practice (2021)
• Cardiovascular Engineering and Technology (2021)
• Cardiovascular Research (2018, 2022)
• Circulation: Arrhythmia and Electrophysiology (2021)
• Clinical Medicine Insights Cardiology (2019)
• Computers in Biology and Medicine (2018-21)
• Computing in Cardiology Conference (2017-21)
• eLIFE (2021)
• Engineering with Computers (2022)
• Europace (2016-21)
• European Heart Journal (2022)
• Frontiers in Cardiovascular Medicine (2020, 2022)
• Frontiers in Physiology (2017, 2019-22)
• Heart Rhythm (2017-19)
• IEEE Transactions on Biomedical Engineering (2016, 2019-21)
• IEEE Transactions on Medical Imaging (2022)
• International Journal of Clinical Cardiology (2017)
• JACC Clinical Electrophysiology (2021-22)
• Journal of Cardiovascular Electrophysiology (2021)
• Journal of Computational Physics (2021)
• Journal of Open Source Software (2021)
• Mathematics (2022)
• Medical and Biological Engineering and Computing (2016-17, 2019)
• Medical Image Analysis (2020-21)
• Platform for Advanced Scientific Computing (PASC) Conference (2021)
• Philosophical Transactions of the Royal Society A (2019-20)
• Physiological Reports (2022)
• PLOS Computational Biology (2017, 2019)
• PLOS ONE (2019)
• Simulation: Transactions of the Society for Modeling and Simulation (2018)
• Wellcome Open Research (2022)
9.3 Universities

- Ghent University (2021)
- KIT Department of Mathematics (2022)
- KIT Department of Electrical Engineering and Information Technology (2020-2022)
- Politecnico di Milano (2021)
- Università degli Studi di Milano (2022)
Axel Loewe’s Supervisions

10 Supervised PhD Students


• Brenneisen, J., expected 2022
• Nagel, C., expected 2023
• Barrios Espinosa, C.A., expected 2024
• Martínez Díaz, L.P., expected 2024
• Martínez Antón, C., expected 2024
• Krauß, J., expected 2025
• Steyer, J.F., expected 2025

11 Supervised and Refereed Student Theses


