Axel Loewe’s Publications

1 Peer-reviewed Journal Articles

Forthcoming


2022


1 Equal contributions by several authors are denoted by *.


2021


2018


2017


2014

2 Data & Software


2 Data & Software


3 Proceedings

2022 [p87] Nagel, C., Schaufelberger, M., Dössel, O., and Loewe, A. “A bi-atrial statistical shape model as a basis to classify left atrial enlargement from simulated and clinical 12-lead ECGs”. In: vol. 13131. 12th Workshop on Statistical Atlases and Computational Modelling of the Heart (STACOM), Lecture Notes in Computer Science 2022. pp. 38–47. DOI: 10.1007/978-3-030-93722-5_5.


[p48] Nagel, C., Pilla, N., Loewe, A., and Dössel, O. “Quantification of Interpatient 12-lead ECG Variabilities within a Healthy Cohort”. In: *Current Directions in Biomedical Engineering*. Vol. 6. BMT


2019


2016


2014


4 Abstracts


Brenneisen, J., Dössel, O., and Loewe, A. “Influence of pressure boundary condition definition on flow patterns in cardiac simulations”. In: iHEART Congress – Modelling the Cardiac Function. 2022.


[a70] Dössel, O. and Loewe, A. “Bridging the Gap Between Cardiac Modeling and Clinical Applications”. In: Modelling the Cardiac Function - Theory, Numerical Methods, Clinical Applications. 2020.


Sánchez, J., Trénor, B., Saiz, J., Dössel, O., and Loewe, A. “In-silico adaptation of a myofibroblast electrophysiology model including intracellular calcium handling”. In: Biomedizinische Technik / Biomedical Engineering. BMT 2020 - 54th Annual Conference of the German Society for Biomedical Engineering (VDE|DGBMT) 2020. DOI: 10.1515/bmt-2020-6011.


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: *Biomedizinische Technik / Biomedical Engineering*. Vol. 63. BMT 2018 - 52th Annual Conference of


5 Invited Talks

2022


2021
[t10] Loewe, A. “Computational Cardiac Modeling - Synergies with Machine Learning”. In: Cardiac Electromechanics Research Group (Prof. Niederer / Bishop), King’s College London 2021. London, UK.


2019


2017

[t5] Loewe, A. “Validation upside down - In-silico models to sound the potential and limitations of diagnostic tools”. In: TRM Forum 2017. Lugano, Switzerland.

2016
[t4] Loewe, A. “Multiscale computational cardiology”. In: Computational Physiopathology Unit (Prof. Stefano Severi), University of Bologna 2016. Bologna, Italy.


[t1] Loewe, A. “Multiscale in silico modeling of human atrial electrophysiology”. In: Computational Cardiology Lab (Prof. Natalia Trayanova), Johns Hopkins University 2014. Baltimore, USA.

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=iLLlXTmFFMc&list=PL0TmH52ybq1fnLU0b1TKz8qFCuEJyRNJk&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=g75nZ0wISMI.


2020  [o3] Fakultät für Elektrotechnik und Informationstechnik. “Studieren am KIT: Elektrotechnik und Informationstechnik (ETIT)”. YouTube 2021. URL: https://www.youtube.com/watch?v=m7q0o1KqVcE.


See CV for further dissemination and outreach activities.

8 Book Chapters and Monographs


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, 2022)
• 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 (2017-22)
• eLIFE (2021)
• Engineering with Computers (2022)
• Europace (2016-21)
• European Heart Journal (2022)
• Expert Systems with Applications (2022)
• Frontiers in Cardiovascular Medicine (2020, 2022)
• Frontiers in Physiology (2017, 2019-22)
• Heart Rhythm (2017-19)
• IEEE Transactions on Automation Science and Engineering (2022)
• IEEE Transactions on Biomedical Engineering (2016, 2019-21)
• IEEE Transactions on Medical Imaging (2022)
• International Journal of Clinical Cardiology (2017)
• International Journal for Numerical Methods in Biomedical Engineering (2022)
• JACC Clinical Electrophysiology (2021-22)
• Journal of Cardiovascular Electrophysiology (2021-22)
• Journal of Computational Physics (2021)
• Journal of Open Source Software (2021-22)
• 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


• Nagel, C., expected 2022
• Brenneisen, J., 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


