



Curriculum Vitae

Personal information **Libera Fresiello**

Work experience

01/01/2022 – ongoing – Enschede, The Netherlands

ASSISTANT PROFESSOR – University of Twente

- Development of high fidelity in silico and in vitro cardiorespiratory simulators for the testing of artificial organs devices and their physiological controllers.
- Development of an ECMO simulator for the training of medical personnel and students

01/08/2018 – 31/12/2021 – Leuven, Belgium

RESEARCH ASSOCIATE – Katholieke Universiteit Leuven

- Creation/management/running of an engineering laboratory embedded into to the group of cardiac surgery
- Development of a new in vitro simulator for the testing of diagnostic medical imaging equipment

01/08/2017 – 31/07/2018 – Leuven, Belgium

RESEARCH ASSOCIATE – Katholieke Universiteit Leuven

(Frans Van de Werf scholarship and travel grant N. FWO-V446017N)

Visiting researcher at the Centre for Medical Physics and Biomedical Engineering, Medical University of Vienna (October 2017- February 2018)

- Conduction of a multicentre clinical study (Leuven-Vienna) to identify limiting factors of exercise capacity in LVAD patients
- Conduction of an in silico simulation study to investigate the hemodynamic interaction between the cardiovascular system and VADs during exercise.

05/08/2014 – 31/07/2017 – Leuven, Belgium

POST DOC – Katholieke Universiteit Leuven

(Marie Curie scholarship “ VAD and exercise”, FP7-PEOPLE-2013-IEF Project number 624296)

- Conduction of a clinical study to investigate exercise capacity and heart rate variability in patients with VAD and with a heart transplantation
- Feasibility study on the use of wearable technology as a monitoring system of heart failure patient’s daily activity and of their cardiac rehabilitation program
- Development of an in silico cardiorespiratory simulator for the study of complex pathophysiological conditions (e.g. exercise pathophysiology, fluid responsiveness during mechanical assisted ventilation etc.)

09/2010 – 08/2014 – Rome, Italy

COLLABORATION RESEARCH CONTRACT – Institute of Clinical Physiology, Italian National Research Council

(The research was conducted in the frame of the EU SensorART project (ICT-FP7-GA N 248763))

- Development of a modular in silico cardiovascular simulator including autonomic controls and pharmacological therapies

-Development of hybrid (numerical – hydraulic) cardiovascular simulator to study the hemodynamic effects of mechanical circulatory support systems (intra-aortic balloon pump, VAD etc.) on the cardiovascular system in different pathophysiological conditions.
-Collection and analysis of in vivo data from large animals to validate the in silico and hybrid simulators mentioned above.

09/2009 – 08/2010 – Rome, Italy

COLLABORATION RESEARCH CONTRACT – Istituto Nazionale per le Ricerche Cardiovascolari

-Development and validation of an in silico simulator for the study of the interaction between biventricular pacemaker and the cardiovascular system.
-Development and validation of a computational model for the stem cells therapy for myocardial infarction aimed at reproducing the main phenomena of diffusions of nutrients in the tissue

11/2009 – 07/2010 – Rome, Italy

COLLABORATION (AS VISITING RESEARCHER) – Institute of Clinical Physiology, Italian National Research Council

-Collaboration for the simulation of different types mechanical circulatory assist devices (PUCA pump, intra aortic balloon pump) and their comparison in terms of hemodynamic and energetics effects on the myocardium.

08/2009 – 10/2009 – Rome, Italy

COLLABORATION RESEARCH CONTRACT – Institute of Clinical Physiology, Italian National Research Council.

Realization of a computational model of a ventricular assist device as module of the software simulator CARDIOSIM©.

02/2009 – 08/2009 – Rome, Italy

VOLUNTEER RESEARCH COLLABORATOR – Institute of Clinical Physiology, Italian National Research Council.

Study of the cardiovascular physiology and lumped parameters models. Study and in simulation of mechanical circulatory support systems, their working principles and effects on hemodynamics.

Education and training

14/01/2014 – Warsaw, Poland

DOCTOR OF PHILOSOPHY (PHD) TECHNICAL SCIENCES, SPECIALIZATION IN BIOCYBERNETICS AND BIOMEDICAL ENGINEERING Republic of Poland - *Natęcz* Institute of Biocybernetics and Biomedical Engineering “*Maciej Natęcz*”

28/04/2011 – Florence, Italy

II LEVEL MASTER IN CLINICAL ENGINEERING – University of Florence

12/2008 – Rome, Italy

QUALIFICATION FOR PROFESSIONAL PRACTICE IN ENGINEERING – Ordine degli ingegneri di Roma

27/10/2008 – Rome, Italy

MASTER IN BIOMEDICAL ENGINEERING – University Campus

Additional information

Publications

- 1: Duinmeijer WC, Fresiello L, Swol J, Torrella P, Riera J, Obreja V, Puślecki M, Dąbrowski M, Arens J, Halfwerk FR. Simulators and Simulations for Extracorporeal Membrane Oxygenation: An ECMO Scoping Review. *J Clin Med*. 2023 Feb 22;12(5):1765. doi: 10.3390/jcm12051765. PMID: 36902552; PMCID: PMC10003420.
- 2: Fresiello L, Gross C, Jacobs S. Exercise physiology in left ventricular assist device patients: insights from hemodynamic simulations. *Ann Cardiothorac Surg*. 2021 May;10(3):339-352. doi: 10.21037/acs-2020-cfmcs-23. PMID: 34159115; PMCID: PMC8185386.
- 3: Hayward CS, Fresiello L, Meyns B. Exercise physiology in chronic mechanical circulatory support patients: vascular function and beyond. *Curr Opin Cardiol*. 2016 May;31(3):292-8. doi: 10.1097/HCO.0000000000000285. PMID: 26945227.
- 4: Rocchi M, Ingram M, Claus P, D'hooge J, Meyns B, Fresiello L. Use of 3D anatomical models in mock circulatory loops for cardiac medical device testing. *Artif Organs*. 2023 Feb;47(2):260-272. doi: 10.1111/aor.14433. Epub 2022 Nov 12. PMID: 36370033.
- 5: Rocchi M, Fresiello L, Jacobs S, Dauwe D, Droogne W, Meyns B. Potential of Medical Management to Mitigate Suction Events in Ventricular Assist Device Patients. *ASAIO J*. 2022 Jun 1;68(6):814-821. doi: 10.1097/MAT.0000000000001573. Epub 2022 Sep 9. PMID: 34524148.
- 6: Oppersma E, Geraats S, Heikens NH, Welleweerd A, Woerts CA, Fresiello L, Meuwese CL, Donker DW. Finite Element Modeling of Pulmonary Mechanics in Severe Acute Respiratory Distress Syndrome: Explaining the Inclination Angle? *Am J Respir Crit Care Med*. 2022 Sep 15;206(6):798-799. doi: 10.1164/rccm.202205-0931LE. PMID: 35653704; PMCID: PMC9799118.
- 7: Fresiello L, Najjar A, Brynedal Ignell N, Zieliński K, Rocchi M, Meyns B, Perkins IL. Hemodynamic characterization of the Realheart® total artificial heart with a hybrid cardiovascular simulator. *Artif Organs*. 2022 Aug;46(8):1585-1596. doi: 10.1111/aor.14223. Epub 2022 Mar 27. PMID: 35231138.
- 8: Di Molfetta A, Amodeo A, Fresiello L, Trivella MG, Iacobelli R, Pilati M, Ferrari G. Simulation of Ventricular, Cavo-Pulmonary, and Biventricular Ventricular Assist Devices in Failing Fontan. *Artif Organs*. 2015 Jul;39(7):550-8. doi: 10.1111/aor.12434. Epub 2015 Mar 21. PMID: 25808201.
- 9: Rocchi M, Fresiello L, Meyns B, Jacobs S, Gross C, Pauls JP, Graefe R, Stecka A, Kozarski M, Zieliński K. A Compliant Model of the Ventricular Apex to Study Suction in Ventricular Assist Devices. *ASAIO J*. 2021 Oct 1;67(10):1125-1133. doi: 10.1097/MAT.0000000000001370. PMID: 34570727.
- 10: Bornoff J, Najjar A, Fresiello L, Finocchiaro T, Perkins IL, Gill H, Cookson AN, Fraser KH. Fluid-structure interaction modelling of a positive-displacement Total Artificial Heart. *Sci Rep*. 2023 Apr 14;13(1):5734. doi: 10.1038/s41598-023-32141-2. PMID: 37059748; PMCID: PMC10104863.
- 11: Tzallas AT, Katertsidis NS, Karvounis EC, Tsipouras MG, Rigas G, Goletsis Y, Zielinski K, Fresiello L, Molfetta AD, Ferrari G, Terrovitis JV, Trivella MG, Fotiadis DI. Modeling and simulation of speed selection on left ventricular assist devices. *Comput Biol Med*. 2014 Aug;51:128-39. doi: 10.1016/j.compbiomed.2014.04.013. Epub 2014 May 9. PMID: 24907416.
- 12: Fresiello L, Buys R, Jacobs S, Van Puyvelde J, Droogne W, Rega F, Meyns B. Exercise capacity in left ventricular assist device patients with full and partial support. *Eur J Prev Cardiol*. 2017 Jan;24(2):168-177. doi: 10.1177/2047487316656088. Epub 2016 Jul 10. PMID: 27353127.
- 13: Ferrari G, Di Molfetta A, Zieliński K, Fresiello L, Górczyńska K, Pałko KJ, Darowski M, Amodeo A, Kozarski M. Control of a Pediatric Pulsatile Ventricular Assist Device: A Hybrid Cardiovascular Model Study. *Artif Organs*. 2017 Dec;41(12):1099-1108. doi: 10.1111/aor.12929. Epub 2017 Jun 16. PMID: 28621816.
- 14: Ferrari G, Kozarski M, Zieliński K, Fresiello L, Di Molfetta A, Górczyńska K, Pałko KJ, Darowski M. A modular computational circulatory model applicable to VAD testing and training. *J Artif Organs*. 2012 Mar;15(1):32-43. doi: 10.1007/s10047-011-0606-4. Epub 2011 Sep 20. PMID: 21932097.
- 15: Telyshev D, Denisov M, Markov A, Fresiello L, Verbelen T, Selishchev S. Energetics of blood flow in Fontan circulation under VAD support. *Artif Organs*. 2020 Jan;44(1):50-57. doi: 10.1111/aor.13564. Epub 2019 Oct 13. PMID: 31489642.
- 16: Kelly NS, McCree D, Fresiello L, Brynedal Ignell N, Cookson AN, Najjar A, Perkins IL, Fraser KH. Video-based valve motion combined with computational fluid dynamics gives stable and accurate simulations of blood flow in the Realheart total artificial heart. *Artif Organs*. 2022 Jan;46(1):57-70. doi: 10.1111/aor.14056. Epub 2021 Sep 20. PMID: 34460941.
- 17: Fresiello L, Meyns B, Di Molfetta A, Ferrari G. A Model of the Cardiorespiratory Response to Aerobic Exercise in Healthy and Heart Failure Conditions. *Front Physiol*. 2016 Jun 8;7:189. doi: 10.3389/fphys.2016.00189. PMID: 27375488; PMCID: PMC4896934.
- 18: Van Edom C, Jacobs S, Fresiello L, Vandersmissen K, Vandenbrielle C, Droogne W, Meyns B. Long-term evolution of N-terminal pro-brain natriuretic peptide levels and exercise capacity in 132 left ventricular assist device recipients.

Eur J Cardiothorac Surg. 2022 Jul 11;62(2):ezac053. doi: 10.1093/ejcts/ezac053. PMID: 35143640.

19: Fresiello L, Jacobs S, Timmermans P, Buys R, Hornikx M, Goetschalckx K, Droogne W, Meyns B. Limiting factors of peak and submaximal exercise capacity in LVAD patients. *PLoS One*. 2020 Jul 9;15(7):e0235684. doi: 10.1371/journal.pone.0235684. PMID: 32645710; PMCID: PMC7347393.

20: Fresiello L, Buys R, Timmermans P, Vandersmissen K, Jacobs S, Droogne W, Ferrari G, Rega F, Meyns B. Exercise capacity in ventricular assist device patients: clinical relevance of pump speed and power. *Eur J Cardiothorac Surg*. 2016 Oct;50(4):752-757. doi: 10.1093/ejcts/ezw147. Epub 2016 May 12. PMID: 27174552.

21: Fresiello L, Muthiah K, Goetschalckx K, Hayward C, Rocchi M, Bezy M, Pauls JP, Meyns B, Donker DW, Zieliński K. Initial clinical validation of a hybrid *in silico*-*in vitro* cardiorespiratory simulator for comprehensive testing of mechanical circulatory support systems. *Front Physiol*. 2022 Oct 13;13:967449. doi: 10.3389/fphys.2022.967449. PMID: 36311247; PMCID: PMC9606213.

22: Pladet L, Luijken K, Fresiello L, Miranda DDR, Hermens JA, Smeden MV, Cremer O, Donker DW, Meuwese CL. Clinical decision support for ExtraCorporeal Membrane Oxygenation: Will we fly by wire? *Perfusion*. 2023 Apr 20:2676591231163688. doi: 10.1177/02676591231163688. Epub ahead of print. PMID: 37078916.

23: Di Molfetta A, Amodeo A, Gagliardi MG, Trivella MG, Fresiello L, Filippelli S, Toscano A, Ferrari G. Hemodynamic Effects of Ventricular Assist Device Implantation on Norwood, Glenn, and Fontan Circulation: A Simulation Study. *Artif Organs*. 2016 Jan;40(1):34-42. doi: 10.1111/aor.12591. Epub 2015 Nov 2. PMID: 26526959.

24: Mulder MP, Harmannij-Markusse M, Donker DW, Fresiello L, Potters JW. Is Continuous Intraoperative Monitoring of Mean Arterial Pressure as Good as the Hypotension Prediction Index Algorithm? *Anesthesiology*. 2023 Apr 3. doi: 10.1097/ALN.0000000000004541. Epub ahead of print. PMID: 37011012.

25: Colasanti S, Piemonte V, Devolder E, Zieliński K, Vandendriessche K, Meyns B, Fresiello L. Development of a computational simulator of the extracorporeal membrane oxygenation and its validation with *in vitro* measurements. *Artif Organs*. 2021 Apr;45(4):399-410. doi: 10.1111/aor.13842. Epub 2020 Dec 7. PMID: 33034071.

26: Wu EL, Fresiello L, Kleinhyer M, Meyns B, Fraser JF, Tansley G, Gregory SD. Haemodynamic Effect of Left Atrial and Left Ventricular Cannulation with a Rapid Speed Modulated Rotary Blood Pump During Rest and Exercise: Investigation in a Numerical Cardiorespiratory Model. *Cardiovasc Eng Technol*. 2020 Aug;11(4):350-361. doi: 10.1007/s13239-020-00471-1. Epub 2020 Jun 16. PMID: 32557185.

27: Vandersmissen K, Jacobs S, Fresiello L, Gerits K, Roppe M, Van den Bossche K, Droogne W, Meyns B. Weight evolution after implantation of left ventricular assist device: Do we need to interfere? *Int J Artif Organs*. 2020 Oct;43(10):671-676. doi: 10.1177/0391398820906554. Epub 2020 Feb 22. PMID: 32089042.

28: Gross C, Moscato F, Schläglhofer T, Maw M, Meyns B, Marko C, Wiedemann D, Zimpfer D, Schima H, Fresiello L. LVAD speed increase during exercise, which patients would benefit the most? A simulation study. *Artif Organs*. 2020 Mar;44(3):239-247. doi: 10.1111/aor.13569. Epub 2019 Oct 22. PMID: 31519043.

29: Di Molfetta A, Amodeo A, Fresiello L, Filippelli S, Pilati M, Iacobelli R, Adorasio R, Colella D, Ferrari G. The use of a numerical model to simulate the cavo-pulmonary assistance in Fontan circulation: a preliminary verification. *J Artif Organs*. 2016 Jun;19(2):105-113. doi: 10.1007/s10047-015-0874-5. Epub 2015 Nov 6. PMID: 26545595.

30: Fresiello L, Trivella MG, Di Molfetta A, Ferrari G, Bernini F, Meste O. The relationship between R-wave magnitude and ventricular volume during continuous left ventricular assist device assistance: experimental study. *Artif Organs*. 2015 May;39(5):446-50. doi: 10.1111/aor.12407. Epub 2014 Nov 6. PMID: 25377695.

31: Ferrari G, Khir AW, Fresiello L, Di Molfetta A, Kozarski M. Hybrid model analysis of intra-aortic balloon pump performance as a function of ventricular and circulatory parameters. *Artif Organs*. 2011 Sep;35(9):902-11. doi: 10.1111/j.1525-1594.2011.01244.x. Epub 2011 Jul 5. PMID: 21726242.

32: Di Molfetta A, Ferrari G, Iacobelli R, Filippelli S, Fresiello L, Gagliardi MG, Toscano A, Trivella MG, Amodeo A. Simulation of acute haemodynamic outcomes of the surgical strategies for the right ventricular failure treatment in pediatric LVAD. *Int J Artif Organs*. 2015 Dec;38(12):638-45. doi: 10.5301/ijao.5000462. Epub 2016 Jan 30. PMID: 26847500.

33: Di Molfetta A, Ferrari G, Iacobelli R, Filippelli S, Guccione P, Fresiello L, Perri G, Amodeo A. Concomitant pulsatile and continuous flow VAD in biventricular and univentricular physiology: a comparison study with a numerical model. *Int J Artif Organs*. 2017 Mar 16;40(2):74-81. doi: 10.5301/ijao.5000562. Epub 2017 Feb 11. PMID: 28218352.

34: Fresiello L, Zieliński K, Jacobs S, Di Molfetta A, Pałko KJ, Bernini F, Martin M, Claus P, Ferrari G, Trivella MG, Górczyńska K, Darowski M, Meyns B, Kozarski M. Reproduction of continuous flow left ventricular assist device experimental data by means of a hybrid cardiovascular model with baroreflex control. *Artif Organs*. 2014 Jun;38(6):456-68. doi: 10.1111/aor.12178. Epub 2013 Oct 1. PMID: 24117988.

35: Di Molfetta A, Ferrari G, Filippelli S, Fresiello L, Iacobelli R, Gagliardi MG, Amodeo A. Use of Ventricular Assist Device in Univentricular Physiology: The Role of Lumped Parameter Models. *Artif Organs*. 2016 May;40(5):444-53. doi: 10.1111/aor.12583. Epub 2015 Oct 23. PMID: 26494529.

36: Gross C, Fresiello L, Schläglhofer T, Dimitrov K, Marko C, Maw M, Meyns B,

Wiedemann D, Zimpfer D, Schima H, Moscato F. Hemodynamic exercise responses with a continuous-flow left ventricular assist device: Comparison of patients' response and cardiorespiratory simulations. *PLoS One*. 2020 Mar 18;15(3):e0229688. doi: 10.1371/journal.pone.0229688. PMID: 32187193; PMCID: PMC7080259.

37: Di Molfetta A, Forleo GB, Santini L, Fresiello L, Papavasileiou LP, Magliano G, Sergi D, Capria A, Romeo F, Ferrari G. A novel methodology for AV and VV delay optimization in CRT: results from a randomized pilot clinical trial. *J Artif Organs*. 2013 Sep;16(3):273-83. doi: 10.1007/s10047-013-0701-9. Epub 2013 Mar 16. PMID: 23504186.

38: Fresiello L, Gu YJ, Ferrari G, Di Molfetta A, Rakhorst G. PUCA pump and IABP comparison: analysis of hemodynamic and energetic effects using a digital computer model of the circulation. *Int J Artif Organs*. 2011 May;34(5):442-55. doi: 10.5301/IJAO.2011.8361. PMID: 21623586.

39: Di Molfetta A, Ferrari G, Iacobelli R, Filippelli S, Fresiello L, Guccione P, Toscano A, Amodeo A. Application of a Lumped Parameter Model to Study the Feasibility of Simultaneous Implantation of a Continuous Flow Ventricular Assist Device (VAD) and a Pulsatile Flow VAD in BIVAD Patients. *Artif Organs*. 2017 Mar;41(3):242-252. doi: 10.1111/aor.12911. PMID: 28281287.

40: Ferrari G, Kozarski M, Fresiello L, Di Molfetta A, Zieliński K, Górczyńska K, Pałko KJ, Darowski M. Continuous-flow pump model study: the effect on pump performance of pump characteristics and cardiovascular conditions. *J Artif Organs*. 2013 Jun;16(2):149-56. doi: 10.1007/s10047-013-0691-7. Epub 2013 Mar 5. PMID: 23463355.

41: Fresiello L, Khir AW, Di Molfetta A, Kozarski M, Ferrari G. Effects of intra-aortic balloon pump timing on baroreflex activities in a closed-loop cardiovascular hybrid model. *Artif Organs*. 2013 Mar;37(3):237-47. doi: 10.1111/j.1525-1594.2012.01540.x. Epub 2012 Nov 2. PMID: 23121229.

42: Fresiello L, Rademakers F, Claus P, Ferrari G, Di Molfetta A, Meyns B. Exercise physiology with a left ventricular assist device: Analysis of heart-pump interaction with a computational simulator. *PLoS One*. 2017 Jul 24;12(7):e0181879. doi: 10.1371/journal.pone.0181879. PMID: 28738087; PMCID: PMC5524292.

43: Graefe R, Henseler A, Körfer R, Meyns B, Fresiello L. Influence of left ventricular assist device pressure-flow characteristic on exercise physiology: Assessment with a verified numerical model. *Int J Artif Organs*. 2019 Sep;42(9):490-499. doi: 10.1177/0391398819846126. Epub 2019 May 20. PMID: 31104554.

44: Thijs I, Fresiello L, Oosterlinck W, Sinnaeve P, Rega F. Assessment of Physical Activity by Wearable Technology During Rehabilitation After Cardiac Surgery: Explorative Prospective Monocentric Observational Cohort Study. *JMIR Mhealth Uhealth*. 2019 Jan 31;7(1):e9865. doi: 10.2196/mhealth.9865. PMID: 30702433; PMCID: PMC6374731.

45: Di Molfetta A, Ferrari G, Iacobelli R, Fresiello L, Pilati M, Toscano A, Filippelli S, Morelli S, Amodeo A. Acute Biventricular Interaction in Pediatric Patients Implanted with Continuous Flow and Pulsatile Flow LVAD: A Simulation Study. *ASAIO J*. 2016 Sep-Oct;62(5):591-9. doi: 10.1097/MAT.0000000000000396. PMID: 27258223.

46: Di Molfetta A, Jacobs S, Fresiello L, Verbelen T, Trivella MG, Meyns B, Ferrari G. Simulation of apical and atrio-aortic VAD in patients with transposition or congenitally corrected transposition of the great arteries. *Int J Artif Organs*. 2014 Jan;37(1):58-70. doi: 10.5301/ijao.5000264. Epub 2013 Dec 17. PMID: 24634335.

47: Fresiello L, Khir AW, Di Molfetta A, Kozarski M, Ferrari G. IABP timing and ventricular performance--comparison between a compliant and a stiffer aorta: a hybrid model study including baroreflex. *Int J Artif Organs*. 2013 Nov;36(11):749-57. doi: 10.5301/ijao.5000248. Epub 2013 Oct 2. PMID: 24338649.

48: Mahmood MN, Fresiello L, Di Molfetta A, Ferrari G. A modeling tool to study the combined effects of drug administration and LVAD assistance in pathophysiological circulatory conditions. *Int J Artif Organs*. 2014 Nov;37(11):824-33. doi: 10.5301/ijao.5000366. Epub 2014 Nov 27. PMID: 25450316.

Projects 08/2014 – 08/2016

VAD and Exercise, European Commission, Marie Curie Actions Intra-European Fellowship, N. 624296

Investigations of exercise capacity in patients supported by a ventricular assist device. Clinical investigations in patients and development of an in silico model to reproduce the observed cardiorespiratory phenomena

2017 – 2018

Exercise with a VAD: multicenter study of pump-patient interaction to evaluate limiting factors and strategies of improvement, Frans Van de Werf Fund for Clinical Cardiovascular Research

Conduction of a multicentre clinical study (Leuven-Vienna) to identify limiting factors of exercise capacity in LVAD patients Conduction of an in silico simulation study to investigate the hemodynamic interaction between the cardiovascular system and VADs during exercise.

2014 – 2017

Exercise hemodynamics in patients subsequently undergoing LVAD therapy and heart transplantation: patient-based model building, Fonds pour la Chirurgie Cardiaque, N. 489589

Evaluation of exercise capacity in patients supported by a ventricular assist device and patients that received heart transplantation

2020 – CURRENT

An in vitro system for the evaluation of medical devices, KUL Internal funds, C3/20/033

Development of a new in vitro simulator for the testing of diagnostic medical imaging equipment

2018 – CURRENT

Improving outcome after the Ross procedure, FWO- Strategische Onderzoeksbeurs (Student Lucas Van Hoof)

Improving outcome after the Ross procedure

2020 – CURRENT

Anatomical And Functional Optimization Of A Hybrid Simulator To Support Medical Device Testing, FWO- Strategische Onderzoeksbeurs (Student Maria Rocchi)

Development of a new in vitro simulator of the cardiovascular system including 3D printed anatomical components

2019 – CURRENT

A cardiovascular simulator for medical device testing, Bilateral Project FWO-PAS, N.VS03119N

Improvement of a hybrid (computational-hydraulic) simulator of the cardiovascular system

2018 – CURRENT

Exercise physiology with a Ventricular Assist Device, KUL Internal funds, N. C14-18-080

Development of an in vitro and in vivo model to test the interaction between ventricular assist device and the cardiovascular system during physical exercise

2019 – CURRENT

CardioMiMic: a cardiovascular simulator for teaching cardiovascular pathophysiology, KUL Internal funds, Microproject

Adaptation of an in silico cardiovascular simulator for teaching and educational purposes

2017 – CURRENT

Can we improve exercise capacity in VAD patients?, Fonds pour la Chirurgie Cardiaque, N. 489618

Evaluation of limiting factors of exercise physiology in patients supported by a ventricular assist device

Memberships

International conferences/seminars/sessions organized:

- “Developing Smarter Pumps and Improving Patient Experience: Innovations in Mechanical Circulatory Support”, Avinguda de l'Hotel Castelldefels, Spain, 8-9 June 2019
- Organizer of the ICB seminar “Mechanical supports to life: Bioengineering meets clinical arena (modeling and patients' data)” at the Nalecz Institute of Biocybernetics and Biomedical Engineering, Polish Academy of Sciences, Warsaw Poland, 21-23 May 2018
- Member of the organizers of 6 annual young European Society for Artificial Organs (yESAO) conferences, from 2011 to 2016
- Member of the organizing committee of the XLII European Society for Artificial Organs (ESAO) conference in Leuven, Belgium, 2-5 Sept. 2015
- Member of the organizing committee of the XLI European Society for Artificial Organs (ESAO) conference in Rome, Italy, 17-20 Sept. 2014
- Board member of the ISMCS (International Society for Mechanical Circulatory Support), 2019 -2023
- Member of the ESAO (European Society for Artificial Organs), 2011 - till now
- Member of theVPH (Virtual Physiological Human), 2021-till now
- Member of the organizers of the “young ESAO”, 2011-2016

Other Relevant Information

Honors and Rewards:

2019

ESAO-SAGE Research Award – European Society for Artificial Organs

2017

Best abstract and presentation, AMAC conference – Conference on Applied Modeling in Acute Care

2016

Best poster award at the XLIII ESAO conference – European Society for Artificial Organs

2014

ESAO PhD Award for excellent PhD theses – European Society for Artificial Organs

2014

Special Prize for the PhD thesis – **Naręcz** Institute of Biocybernetics and Biomedical Engineering, Polish Academy of Sciences