

Personal information form for Fellow members of EAMBES

Personal Info



Name: Univ.Prof. DI Heinrich Schima, PhD

Gender: male

Date and place of birth: 1957, Austria

Present affiliations and functions:

- a.o. Professor for Biomed Engineering, Med. Univ. of Vienna
- Board Member of the Ludwig-Boltzmann-Cluster for Cardiovascular Research
- President of the ESAO (European Society for Artificial Organs)
- Treasurer of the OEGMBT (Austrian Society for Biomed. Eng.)

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Short CV

1. Education:

1981 Master Electronics and control engineering Tech.Univ. Vienna

1985 PhD with distinction at the Tech.Univ. of Vienna and the Boltzmann-Institute of Traumatology, Thesis topic: "Functional studies in isolated hearts"

2. Professional Affiliations:

1985 - 1993 : University assistant at the 2nd Department of Surgery, Univ. of Vienna

1993: Habilitation (i.e. Tenure) for Biomedical Engineering at the University of Vienna, Topic of Habilitation "Monitoring and Control of Blood Pumps";

Head of the Working Group on Cardiovascular Dynamics and the Plastics Lab.

1997 - : A.o. Professor at the Inst. of Biomed Engineering and Physics and at the Department of Cardiac Surgery, Med. Univ. of Vienna

3. Major Activities at the national and international level:

- Cooperations with institutions and companies in USA, Japan, Germany, Greece, Italy, Czechia, Serbia, Israel and UdSSR. Participation in two EU-projects with multiple international participants.
- Board Member of the Int. Society for Artificial Organs (ISAO)
- President of the International Society for Rotary Blood Pumps (ISRBP) 2006-07 (Vice President 2002-05, Secretary General 2000-02, Board Member 1995-2000)
- President of the European Society for Artificial Organs (ESAO) 2010-12 (Board Member 2000 – 03, Secretary General 2003-08, President Elect 2008-10),
- Board Member of the International Federation of Artificial Organs (IFAO) 2002-2009
- Board member of the International Society for Artificial Organs ISAO (1994-98)
- Cashier of the Austrian Society for Biomed. Eng. (ÖGBMT) 2006 – (Board Member 1997-)

4. Major scientific interests:

Mechanical Cardiac Assist, Applied Research: Development of driving and monitoring systems for pneumatic blood pumps, research on automatic control, including development of microcontroller based apparatus. Development of centrifugal blood pumps, including development of in-vitro circuits for blood traumatization modelling, and hydromechanic bearings; Simulation of the supported Circulation; Noninvasive cardiac monitoring via pump parameters.

Mechanical Cardiac Assist, Clinical Implementation: Technical coordination and supervision at the introduction of the pneumatically driven total artificial heart since 1986, worldwide first discharge of a

patient with rotary blood pump 1999; First worldwide clinical trial on automatic control of rotary blood pumps 2002; Safety and usability of life-supporting systems.

Biomechanics and flow in cardiovascular prostheses, bioreactors and diagnostic systems:

Hydraulic circuits of flow simulation within for bioreactors with cell cultures;

Simulation of flow relationships in biological and artificial valves and vascular stenoses for investigation of ultrasound diagnostic systems and vascular stents;

Investigation on the local flow interaction between biological system and diagnostic invasive devices.

Vascular Grafts: Biomaterials, production with micro- and nanotechnology, experimental evaluation.

Dialysis and blood purification system development: Development of mechanical and electronic components for a blood purification system based on microsphere adsorbers,

International Activities within several cooperations with institutions and companies in USA, Japan, Germany, Greece, Italy, Czechia, Serbia, Israel and UdSSR. Participation in two EU-projects with multiple international participants.

Publications:

141 Full Articles,

ca 350 abstracts and congress proceedings,

13 patents (of which 3 international patent families). 1970 Citations, h-index 25

4 Key Publications:

1: Schima H, Vollkron M, Jantsch U, Crevenna R, Roethy W, Benkowski R, Morello G, Quittan M, Hiesmayr M, Wieselthaler G. First clinical experience with an automatic control system for rotary blood pumps during ergometry and right-heart catheterization. *J Heart Lung Transplant*. 2006 Feb;25(2):167-73.

2: Wieselthaler GM, Schima H, Hiesmayr M, Pacher R, Laufer G, Noon GP, DeBakey M, Wolner E. First clinical experience with the DeBakey VAD continuous-axial-flow pump for bridge to transplantation. *Circulation*. 2000 Feb 1;101(4):356-9.

3: Niederberger J, Schima H, Maurer G, Baumgartner H. Importance of pressure recovery for the assessment of aortic stenosis by Doppler ultrasound. Role of aortic size, aortic valve area, and direction of the stenotic jet in vitro. *Circulation*. 1996 Oct 15;94(8):1934-40.

4: Schima H, Trubel W, Coraim F, Huber L, Müller MR, Redl G, Losert U, Thoma H, Wolner E. Control of the total artificial heart: new aspects in human versus animal experience. *Artif Organs*. 1989 Dec;13(6):545-52.

Recognitions:

Austrian state award on reduction of animal-experiments 1992;

Annual Award (Stefan-Schuy-Award) of the Austrian Society for Biomed. Eng.OEGBMT 1992;

Koyanagi Young Investigator Award (Main Award) of the Int. Soc. for Rotary Blood Pumps 1992;

Presidential Award for Excellence in Science of Artificial Organs, IFAO 2009

1st Kolff-Olsen-Award of the American Society for Artificial Organs 2009 (most prestigious award for ongoing projects of the ASAIO)

Co-Author for 4 times Annual Award (Stefan-Schuy-Award) of the Austrian Society for Biomedical Engineering OEGBMT 1993, 1996, 1999, 2003, the Annual Award of the European Society for Artificial Organs 1994 and 2005, the Award of the Austrian Society for Cardiology 1992 and 2011, Koyanagi Young Investigator Travel Award of the Int. Society for Rotary Blood Pumps 2002 and 2005, 2 times Clinical Award (Don-Olsen-Award) of the Int. Society for Rotary Blood pumps,

Sager-Award of the Austrian Society for Radiology 1994, Award of the European Society for Vascular Surgery 1997
