



Newsletter

of the European Society for Artificial Organs

Letter from the President

ESAO Newsletter
March 2022

Inside this issue:

- p1 Letter from the president
- p3 ESAO 2021 Election Results
- p4 Update on ESAO Meeting 2021
- p5 yESAO news and online congress 2021
- p7 ESAO Summer School 2022
- p7 The most cited articles in the IJAO in 2021
- p8 Short report on IFAO
- p9 News about ESAO/IFAO Webinars
- p12 Announcements

Contact

ESAO office:

anita.aichinger@
donau-uni.ac.at

pmbaptista@
iisaragon.es

More information:

www.esao.org

Edited by:

Pedro M. Baptista

Dear Members of European Society for Artificial Organs,

Please find enclosed the first issue of the ESAO Newsletter in 2022, which was edited by Pedro Baptista, our Secretary General.

Clearly, this newsletter comes at a very difficult time. While the last two years have been overshadowed by the COVID-19 pandemic, these challenges have now almost faded into the background in view of the recent tragedy in Ukraine.



The dramatic developments we are all facing made it impossible for ESAO to hold its Annual Conference 2022 in Moscow. Still, after one year without Annual ESAO Conference and an online Annual ESAO Conference last year, it was no option for the Executive Committee to cancel this year's meeting, and we will therefore organize the 48th ESAO conference as on-site meeting in Krems, Austria, with strong support from our colleagues in Vienna.

The preparations have started – please visit our website for details: www.esao.org/esao2022. Abstract submission is already possible and online registration is open. The date remains unchanged, with the yESAO meeting from September 6-7 and the 48th ESAO conference from Sept 7-10, 2022.

We cordially invite you all to join us in Krems for ESAO 2022. At the same time, we ask you to support this meeting with your contributions. We are confident that the conference will stimulate the exchange of experience between researchers, engineers, industry, and clinicians on an international level and will thereby inspire innovation in the field.

Let us use ESAO 2022 to build bridges – bridges between basic research and application, between industry and academia, between scientific disciplines, between early stage and senior researchers, and, most important of all, bridges between people, as we are all united in science! We will do our best to make this conference an unforgettable experience for all participants.

Another event, our traditional ESAO Winter School, which was meant to take place in Naples, Italy in early March 2022, organized by the EUTox group had to be cancelled due to the pandemic situation.

The meeting “Emerging and Future Technologies to Remove Uremic Toxins: Tackling Cardiovascular complications in Kidney Failure” will now be held as ESAO Summer School in Skopje, Republic North Macedonia, from September 21-23, 2022. Please check out on our website for further information.

As usual, the first issue of the Newsletter also contains a summary of the Society's activities in the previous year:

To start with, the ESAO Winter School 2021 took place virtually in Jaca, Spain, from February 24-26, 2021. It was co-organized with the European Chapter of Tissue Engineering & Regenerative Medicine Society (TERMIS-EU). The topic was "The Bionic Human: Biomaterials, (Bio)Artificial and Bioengineered Organs, and Cybernetics for the Future of Regenerative Medicine". The meeting was organized by Pedro Baptista, Zaragoza, Spain. I take this opportunity to express my gratitude to Pedro Baptista, all members of the scientific committee, as well as all speakers of the Winter School for this inspiring and perfectly organized event.

On March 18, 2021, ESAO launched a series of webinars on artificial organs. This initiative was realized together with IFAO, ASAIO and JSAO. Gloria Gallego-Ferrer, as Head of our Working Group Education, took the lead in organizing this series of webinars, and was supported by Thomas Groth and myself, as well as by Anita Aichinger und Karin Strobl (ESAO office). The webinars take place every third Thursday monthly at noon (CEST) except during the summer holidays. They will continue in 2022 and beyond.

The postponed ESAO Annual Congress took place from September 7-11, 2021, virtually in London, UK, under the motto “Uniting Scientific Minds Towards Permanent Artificial Organs”. It was preceded by a meeting of yESAO attracting more than 100 participants, followed by two and a half days filled with plenary lectures, regular oral and poster sessions, as well as special symposia. A virtual trade exhibition was held alongside the Congress. The Congress was greatly organized by Ashraf W. Khir at the Brunel University and his team. Keynote speakers included Anthony Atala (Wake Forest University, USA), Peter Walter (University Hospital RWTH Aachen, Germany) and James Antaki (Cornell University, USA).

The winners of the ESAO-SAGE-Research Awards 2020 and 2021 and the ESAO-PhD Awards 2020 and 2021 presented their works during the ESAO Congress. I would like once again to acknowledge SAGE Publishing for sponsoring the ESAO-SAGE-Research Award 2020 and 2021.

The ESAO Emil S. Bücherl Award was awarded to Prof. Bernd Stegmayr, MD, PhD Umea, Sweden, for his great lifetime achievements for ESAO.

Ares K. Menon, who has represented the Corporate Members on the ESAO Board, handed over his position to Daniel Medart. We welcomed Daniel as a new representative of the Corporate Members and look forward to working with him, since it is one of our current and future aims to tighten our connections with partners from industry.

During the online ESAO congress in London, the busy and very successful Presidency of Piotr Ladyzynski ended. It is my great pleasure to thank Piotr for his great commitment and for his continuous work for ESAO.

Arianna Di Molfetta and Joachim Jankowski finished their second terms as ESAO Governors in 2021, and we thank them both for their valuable contributions. Joachim will further support ESAO Chair of the Uremic Toxins Working Group.

In 2021, ESAO members held an online voting to select a new President Elect and three Governors. According to this voting, Ulrich Steinseifer became ESAO President Elect, and Sebastian V. Jansen, Ulrich Kertzscher and Alessandra Molteni (second term) were elected for the Governor positions.

Cecile Legallais was elected as co-opted Board Member. Congratulations to all new members of our Executive Committee and of the ESAO Board of Governors. I do look forward to our collaboration and I am convinced that all newly elected members will contribute new ideas and energy to our activities.

In January 2022, the ESAO Executive Committee approved the new coordinators of the yESAO, Andreas Escher and Jana Korte, who succeed Ben Torner and Martin Maw. We are very grateful to Ben and Martin for their excellent work as coordinators of the yESAO during the last three years, and welcome Andreas and Jana.

In February 2022, the Executive Committee nominated Dr. Markus Granegger (Vienna, Austria) for the position as a EAMBES councilor. We thank Alessandra Molteni for her commitment in this position during the last years.

With that, let me conclude and express my deep hope that science and the ESAO community can contribute to bringing people together to work for progress and for a peaceful future.

With warm regards,

Viktoria Weber

ESAO 2021 Election Results

Last year, the ESAO elections were run exclusively online with three Governors elected to the Board of Governors, a new President Elect and a new co-opted Board Member.

New Governors of the Board of ESAO



Sebastian Jansen (Germany) is the Chief Engineer & Deputy Head at the Department of Cardiovascular Engineering at the Institute of Applied Medical Engineering of the Helmholtz Institute from RWTH Aachen University, Germany. He's been a member of ESAO since 2014 and a recipient of the Silver PhD-Award of the ESAO.

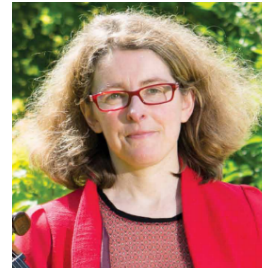
Ulrich Kertzscher (Germany) is the Head of the Biofluid Mechanics Laboratory at Charite – Universitätsmedizin in Berlin, Germany. He has long been involved with ESAO as a member and former Treasurer. He is the recipient of several scientific awards (e.g. Innovation Award Medical Engineering, Innovation Award Bionics).



Alessandra Molteni (UK) is the Transformation Management Lead – Operations at ConvaTec. She was the coordinator of the yESAO between 2016-2019 and a member of the Board of Governors since 2018. She is currently running for her second term.

New co-opted Board Member

Cecile Legallais (France) is the Head of the Bioengineering Department of the Université de Technologie de Compiègne (UTC) in France and the Head of the Laboratory of Biomechanics & Bioengineering in the same institution. She was President of ESAO from 2017-2019 and she held other roles before that in our society.



President Elect



Ulrich Steinseifer (Germany) is a Full Professor of Cardiovascular Engineering and the Deputy Chair & Head of the Cardiovascular Engineering Group at the Helmholtz Institute of RWTH Aachen University, Aachen, Germany. He has been involved with ESAO since 2005 and as a Governor from 2009 until 2015. He is the recipient of multiple national and international awards.

ESAO Meeting 2021 over the Clouds of London

It has been a great honour to be chosen and trusted by ESAO governing board to organise ESAO 2020/2021. This was quite a journey with some roller coaster activities, especially when we had to cancel the conference last year due to the pandemic. Anyway, we are happy that we have staged the first ever online ESAO annual congress and trust all attendees had a rewarding time, both scientifically and personally.

We had 305 registrations, who came from 4 continents and 23 countries. The program itself consisted of 3 plenary talks + 1 cultural talk to replace the gala dinner, 2 entertainment sessions on Wednesday and Thursday evening, 22 Special symposia proposed by pioneers in the field, 10 oral sessions selected from the submitted abstracts. 10 poster sessions with approximately 100 posters presented, new collaborations with 2 New Societies: ESOT and EuroELSO, 1 old collaboration with IFAO, 3 industry sponsored symposium and last but not the least 1 patient experience session. In addition to 1.5 days worth of interactive sessions of yESAO.

During and after the conference, both the quality of the talks received much positive feedback. As a first attempt, running 4-parallel-sessions conference has been a challenge, but thankfully it all went smoothly due to the great effort of the Brunel Team and the Conference Collective Team who worked tirelessly in the background. We must also remember two distinctive individuals with inspiring wisdom, wide connections, great enthusiasm and tireless efforts, that allowed the conference to take place; Prof John Pepper (OBE) – ESAO 2021 Honorary President, Dr Chris Bowles (PhD): Director of the Technical Program and Mr. Michael Whitehorne-King: Director of Sponsorship.

We are also grateful to the ESAO2021 sponsors; ABBOTT, Berlin Heart, Fersenius, Real Heart, MagAssist, Calon Cardio, Chalice medical and Cytosorbent, Livanova, Adjucor and Brunel University London.

A successful conference is never a one-person, or a one-group show. It is collaboration and efforts by many individuals. And we are grateful to ESAO governing board, yESAO with Martin Maw and Benjamin Torner. All session chairs, moderators, and speakers, without whose contributions, we

would not have had a conference. In addition, many thanks to all of our friends round the globe for helping out.

Additionally, A distinctive feature of the ESAO 2021 conference is that all session (bar a handful) were recorded and are available on the online platform for all attendees and will be available for 12 months – if you missed a session, it is there waiting for you to review at your own time. Additionally, the abstract book is available on the website to download.

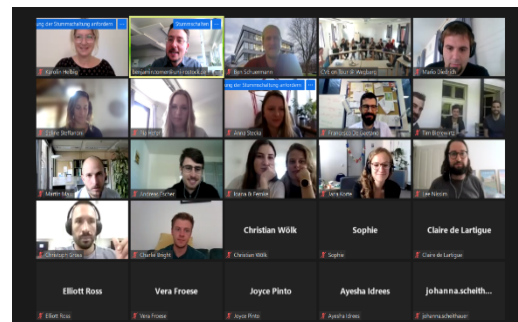
Finally, the value of ESAO conferences always spreads beyond the knowledge gathered in the scientific session and extends to friendship and collaboration. On which note, we pay tribute to a great friend and pioneer in VAD fluid mechanics, Prof Klaus Affeld of Charité in Berlin. This is the first ESAO conference when Klaus did not attend and we fondly remember him.

yESAO news and online congress 2021

yESAO Online Congress 2021

The virtual meeting of the yESAO in September 2021 has once again built bridges all around the globe. Aspiring young researchers got connected and engaged in a multitude of scientific disciplines. Both early-stage and experienced researchers talked about key methods spanning a wide range from computational fluid dynamics, particle image velocimetry all over to haemolysis assessment and 3D printing. Further activities entailed a session of early-stage scientists presenting their research in 3 minutes aiming at the clear and concise communication of scientific findings. Those purely scientific sessions were complemented by inspiring talks on finding career paths in academics and beyond. Senior scientists shared their experience about the various aspects of career development including grant applications, mobility, and the pursuit of passion.

Another outstanding highlight was the Keynote of Dr. Karolin Helbig on the Art and Science of Leadership. This interactive presentation came along with a group-based workshop. In this workshop, young researchers were asked to define strategies to take responsibility and leadership in the supervision of diploma students in general and in light of facing conflicts in particular.



In addition, the yESAO community had the privilege to have two further, mind-blowing Keynotes – Prof. Balachandran was giving an exciting talk about organs on a chip while Prof. Roche inspired with an overview of her ongoing research at MIT. Furthermore, during the ESAO congress the winners of the yESAO Exchange Award 2020 and 2021 got the opportunity to present their projects:

2020:

- Mojgan Ghodrati and Andreas Escher:
'Intraventricular Flow Investigation during a Valveless Pulsatile Pump Support for Heart Failure with Preserved Ejection Fraction.'
- Libera Fresiello and Christoph Gross:
'Evaluation of LVAD indices relating to clinically relevant hemodynamics and cardiovascular impairments simulated with a hybrid model'

2021:

- Ben Schürmann and Mark Zander:

'Sensor System for Mobile and Physiologically Controlled Treatment Method for COPD Patients

- Sara Leal Marin and Mario Fernandez Sanz:

'New hydrogels for liver organoids'

We would like to thank all attendees for making this virtual meeting an enriching experience and we look forward to seeing you again at this year's conference!

Jana, Andi & the yESAO core team

yESAO News

New Coordinators

This year, Ben Torner and Martin Maw completed their final term and handed over the torch of the yESAO coordinator to Jana Korte and Andreas Escher who are briefly introducing themselves below:



Dear yESAO and ESAO Members,

I am Jana Korte and currently PhD Student at STIMULATE Research Campus in Magdeburg. Since 2021 I am a member of the yesao. Getting to know the community is a unique experience and I am happy to be part of this great team. I am honored to take over the part of coordinating the yesao core team. Thinking of fruitful discussions, exceptional talks and the opportunity of collaborations I am now looking forward to this year's (y)esao conference.

*Best,
Jana*



Dear members of the yESAO and ESAO,

My name is Andreas Escher and I am currently pursuing my PhD at the Medical University of Vienna. I joined the yESAO community in 2020. Ever since I got to know the yESAO as an exceptionally welcoming community with utterly bright and open-minded individuals.

It is with great enthusiasm that I am taking over as yESAO coordinator to continue the incredible work put forward by our predecessors Ben and Martin. I would like to take this opportunity to thank the yESAO and the ESAO for their confidence and to express my dedication to support these communities the best I can.

*Best regards,
Andi*

yESAO Core Team 2022

The coordinators will be supported by an international Core Team of 12 dedicated young researchers.

yESAO Exchange Awards 2022

The yESAO is happy to announce the awardees of the yESAO Exchange Award 2022:

- Joseph Bornoff and Faisal Zaman:

'The influence of pumping parameters on haemolysis produced by positive displacement artificial hearts: a combined experimental and numerical study'

- Gesine Hentschel and Nicolas Rivoallan:

'Fabrication of graded polymer fibers for the use in the osteotendinous junction'

ESAO Summer School 2022 – Skopje (North Macedonia)

Another event, our traditional ESAO Winter School, which was meant to take place in Naples, Italy in early March 2022, organized by the EUTox group had to be cancelled due to the pandemic situation.

The meeting “Emerging and Future Technologies to Remove Uremic Toxins: Tackling Cardiovascular complications in Kidney Failure” will now be held as a Summer School in Skopje, Republic North Macedonia, from September 21-23, 2022. Please check out on our website for further information.



**Joint Summer school of the ESAO,
Eutox working group,
and the SFB/TRR219 IRTG**

**“Emerging and future technologies to remove uremic
toxins: tackling cardiovascular complications in kidney
failure”**

Skopje, Republic North Macedonia
21-23 September 2022

EUTox

ESAO
European Society for Artificial Organs

Aachen
SFB TRR 219
Homburg

The most cited articles in the International Journal of Artificial Organs in 2021

1. An introduction to bone tissue engineering

Željka Perić Kačarević, Patrick Rider, Said Alkildani, Sujith Retnasingh, Marija Pejakić, Reinhard Schnettler, Martin Gosau, Ralf and more...

Feb 2020 - Vol 43, Issue 2

First published: 23 Sep 2019

Citations: 25

Views & downloads: 791

2. Venovenous ECMO treatment, outcomes, and complications in adults according to large case series: A systematic review

Jun Hyun Kim, Marina Pieri, Giovanni Landoni, Anna Mara Scandroglio, Maria Grazia Calabrò, Evgeny Fominskiy, Rosalba Lembo, Min H and more...

Jul 2021 - Vol 44, Issue 7

First published: 01 Dec 2020

Views & downloads: 1151

Citations: 3

3. Arteriovenous access in hemodialysis: A multidisciplinary perspective for future solutions

Bernd Stegmayr, Christian Willems, Thomas Groth, Albino Martins, Nuno M Neves, Khosrow Mottaghy, Andrea Remuzzi, Beat Walpoth

Jan 2021 - Vol 44, Issue 1

First published: 22 May 2020

Views & downloads: 782

Citations: 4

Short report about activities of International Federation for Artificial Organs (by IFAO-Secretary-Treasurer Thomas Groth)

Several Members of the Board of Trustees of International Federation for Artificial Organs finished last year their terms. As a new Chairman of IFAO, Prof. Heinrich Schima was elected unanimously for the term from 2022-2023. We congratulate Heinrich Schima heartily to his election and wish him much success during these difficult times. Also all IFAO Board members from American Society for Internal Artificial Organs finished their terms. As new Board members ASAIO appointed Prof. Joseph Zwischenberger, University of Kentucky, Prof. Marvin Slepian, The University of Arizona, and Prof. Egemen Tuzun, Texas A&M University. Japanese Society for Artificial Organs appointed Prof. Prof. Minoru Ono, The University of Tokyo as new Board member. Last year, ESAO nominated Prof. Dimitrios Stamatialis from University of Twente. We congratulate all new Board members and hope that we can intensify the collaboration between the member societies of IFAO.

One of the activities of IFAO is the organization of IFAO Sessions during the annual meeting of member societies which was challenging due to the situation with the pandemic. Despite this, we could organize with strong support from IFAO Board and society members online-IFAO sessions last year. During the congress of Japanese Society for Artificial Organs, Dr. Stamatialis and Dr. Yamashita from Tokyo organized an IFAO online Session on portable/ wearable and implantable artificial kidneys. IFAO is grateful to organizers and speakers of all IFAO Sessions. Currently, we organize an IFAO Session for upcoming congress of ASAIO which will take place from June 8-11, 2022 in Chicago.

IFAO strongly supports the organization of ESAO-IFAO Webinars, which started in Spring 2021 with great success. Our sister societies ASAIO and JSAO help to disseminate the information about webinars to their members, and there was already one webinar coming from Japan. More details about upcoming webinars can be found at ESAO website and in the report of WG Education written by Gloria Gallego Ferrer.

Of course, Corona and recently the Ukraine Crisis puts particular challenges to our worldwide cooperation. If you have any suggestions how IFAO could assist international cooperation in these difficult times, please do not hesitate to contact us.

Also, if you have any questions about activities of IFAO you can contact Thomas Groth (thomas.groth@pharmazie.uni-halle.de) or Heinrich Schima (heinrich.schima@meduniwien.ac.at).



Update and news about the ESAO/IFAO Webinars

In the past year, we were able to organize our second season of the ESAO/IFAO Webinars. We leave you with the past and future speakers. We encourage you all to take advantage of this amazing opportunity to hear from world-class researchers the latest news about several scientific areas.

ESAO-IFAO Webinars

"Artificial Organs & Regenerative Medicine:

Clinical Challenges - Emerging Technologies - Improved Medical Care

Thursday, 12 p.m. CET/CEST

Date	Title	Speaker
November 25th, 2021	Modulating the microenvironment of cells by bioactive surface coatings	 <p>Prof. Thomas Groth Institute of Pharmacy Martin Luther University Halle-Wittenberg, Germany</p>
	Engineering thermoresponsive PNIPAM-grafted-chitosan/heparin multilayers	 <p>Yi-Tung Lu Institute of Pharmacy Martin Luther University Halle-Wittenberg, Germany</p>
December 16th, 2021	From VV-ECMO towards an implantable artificial lung	 <p>Prof. Tom Verbelen Department of Cardiovascular Sciences KU Leuven, Belgium</p>
	Artificial lung support during lung transplantation: development of a large animal model and first experimental results	 <p>Michaela Orlitova, MD Department of Cardiovascular Sciences KU Leuven, Belgium</p>
January 20th, 2022	Liver support systems	 <p>Prof. Cécile Legallais UMR Biomechanics and Bioengineering Université de Technologie de Compiègne, France</p>

**February
17th, 2022**

Biomedical career conversation -
my experience from research to
transformation office



Alessandra Molteni, MSc

Conva Tec, UK

**March
17th, 2022**

Therapeutic apheresis in sepsis



Prof. Steffen Mitzner

University Hospital
Rostock, Germany

Extracorporeal immune-cell
therapy of sepsis



Dr. Gerd Klinkmann

University Hospital
Rostock, Germany

**April
21st, 2022**

Uremic Toxin Sorbents: The Sine
Qua Non of Portable Kidneys



Dr. Stephen Ash

HemoCleanse
Technologies, LLC and Ash
Access Technology, Inc.,
US

To be defined

Dr. Mohamed Labib

Novaflux

**May
19th, 2022**

Japanese technology for
circulatory/respiratory assist
devices

Tomohiro Nishinaka, MD

National Cerebral and
Cardiovascular Center,
Osaka, Japan

**June
9th, 2022**

Functionalized Biomaterial
Systems for Advanced Therapies
and Drug Delivery



Nuno Neves, PhD

Research Institute I3Bs,
University of Minho,
Portugal

Organizing Committee



Prof. Gloria Gallego Ferrer
ESAO Board Governor
Polytechnic University
Valencia



Prof. Thomas Groth
IFAO Secretary
Martin Luther University Halle



Alessandra Molteni, MSc
ESAO Board Governor
ConvaTec



Dr. Marc Müller
ESAO Board Governor
Leibniz Universität Hannover



Prof. Tom Verbelen
ESAO Treasurer
KU Leuven



Prof. Viktoria Weber
ESAO President
Danube University Krems

Yours sincerely,

The ESAO/IFAO Webinars Organizing Committee.

Announcements



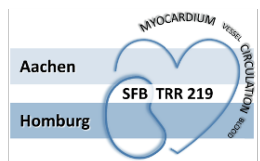
The poster features a scenic view of a vineyard in the foreground with rows of grapevines and yellowing autumn leaves. In the background, a large, historic stone building with multiple towers and spires sits atop a hill under a blue sky with light clouds. The ESAO logo, consisting of a blue circle with yellow stars and the letters 'ESAO', is in the top left corner.

48th ESAO Congress
September 6-10, 2022
Krems, Austria
on-site



The poster shows a panoramic view of the Chicago skyline, including the Willis Tower, under a bright blue sky with scattered white clouds. The text is overlaid on the bottom half of the image.

Save the Date
AMERICAN SOCIETY FOR ARTIFICIAL INTERNAL ORGANS
67th ANNUAL CONFERENCE
ASAIO **June 8-11, 2022**
Hilton Chicago Hotel, Chicago, IL



Joint Summer school of the ESAO, Eutox working group, and the SFB/TRR219 IRTG

**“Emerging and future technologies to remove uremic
toxins: tackling cardiovascular complications in kidney
failure”**

Skopje, Republic North Macedonia
21-23 September 2022

