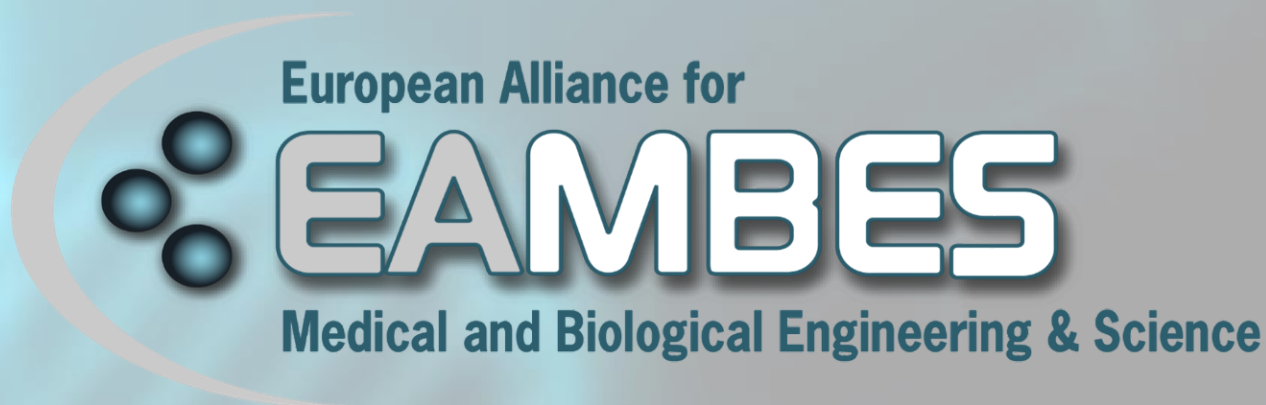


EAMBES 2022: State of the Alliance



**European Alliance of Medical and Biological
Engineering and Science (EAMBES)**

<https://eambes.org/>



EAMBES 2022: State of the Alliance

Dear EAMBES Members, Fellows, and European Biomedical Engineers and Scientists, as per tradition, please find this brief note on EAMBES 2022 activities and state of the alliance, which Timo and I wrote, with support from many Councillors, Fellows and secretariat team.

The 2022, has been another challenging year. We are hoping to move completely out from the COVID-19 pandemic, although we know that our life will never be the same. If nothing else, this pandemic has been teaching us that we all need to work together in order to achieve more sustainable growth. We were recovering from a pandemic when an invasion war started in our Old Continent, and as we stated in last year state of the alliance, for the first time European citizens found themselves in a scenario of limited resources, facing scarcity of essential healthcare technologies, including medical devices or personal protective equipment and reduced means to travel, and most important lack of knowledge and experience to face such an overwhelming circumstance.

We thought that the post-COVID would have been a period of pace and growth, but history seems to have a strange sense of irony.

Therefore, we felt the need to push even harder and to our best, in order to support the growth and the wellbeing of our community, in the best interest of European patients. Again in 2022, many members of our community have given selflessly their time to face these difficult times.

In fact, also in 2022 our biomedical engineering community was proactively involved in the fight of this SARS-COV-2, with the result that now we have substantial knowledge and cost-effective tools to protect European and Global citizens from the severe impact of the COVID-19, although new challenges appear on the horizon. The main difference from 2021, is probably in the awareness that what we have done was not only for COVID-19. We are learning how to *prevent, respond* and *restore* essential healthcare services for facing any forthcoming disaster, including future pandemics, natural catastrophic events, or war, and not only for European citizens.

While facing epidemics, pandemics, and wars, dealing with energetic crises and climate change, we are becoming more conscious of the crucial role that science, and in particular biomedical engineering, will play in future. This is building in our community an unprecedented spirit of services, which I am sure you are all sharing with the coming generation of colleagues, which have the privilege to learn from your inspiring example in your institutions. This is a significant difference, if compared with the education we received.

Also in 2022, most of our events have still been hybrid or held online, due to uncertainty.

However, also in those difficult times, EAMBES has been starting new and positive initiatives, reflecting the great spirit of the European Biomedical Engineers and Scientists community, of which we can all be proud.

- EAMBES established new relations with the European Parliament. **The third European Parliament Interest Group on Biomedical Engineering (EPIG BME)**, was held on the 29th March, 2022, and the fourth is planned for the 23rd of March 2023.
- EAMBES increased its activities for lower-income countries, supporting a summer school on **BME for Sustainable Development**, and generating valuable teaching material.

- EAMBES has been awarded a **new EU project**, while the current one, PandeVita, is still ongoing.
- For the first time, **EAMBES General Assembly was recorded and broadcasted online** the 14th of March 2022.
- **EAMBES Councillors prepared short videos**, presenting themselves, which is available on the EAMBES YouTube channel¹
- EAMBES Conferences are restarting in person, with a 2023 and 2024 program that is quite intensive:
 - NBC2023 is going to be held in in Liepaja, Latvia, 12th -14th of June, <https://nbc2023.lmifb.lv/>
 - MEDICON2023 is going to be held in Sarajevo, 14th-16th of September, www.medicon2023.com
 - EMBEC2024 is going to be held in Ljubljana, 9th -13th of June 2024, <https://www.embec2024.org/>
- EAMBES revamped all its media channels. Please, follow us, and should you have any contents or events to promote, please reach out.

Thanks for all the above go for the EAMBES new secretariat to make it possible. Details are reported below.

EAMBES collaboration with the European Parliament

EAMBES Public Affairs Working Group (PAWG) has established new relations with the European Parliament. **The third European Parliament Interest Group on Biomedical Engineering (EPIG BME)**, titled *Practices, Impact and Promises of Biomedical Engineering for Advancing the EU's Health Priorities* was held on the 29th March, 2022. The recording of the meeting is available on EAMBES YouTube channel². Detailed report is available here: <https://eambes.org/the-third-meeting/>
 The meeting was opened by **MEP Tomislav Sokol** (EPP, Croatia) who highlighted the importance of the event as a means to focus the EU's attention on healthcare innovation and research and those who bring it about, and chaired by our President **Prof Leandro Pecchia**, who highlighted the growth of biomedical engineering in the past few years both in terms of impact and in terms of importance.

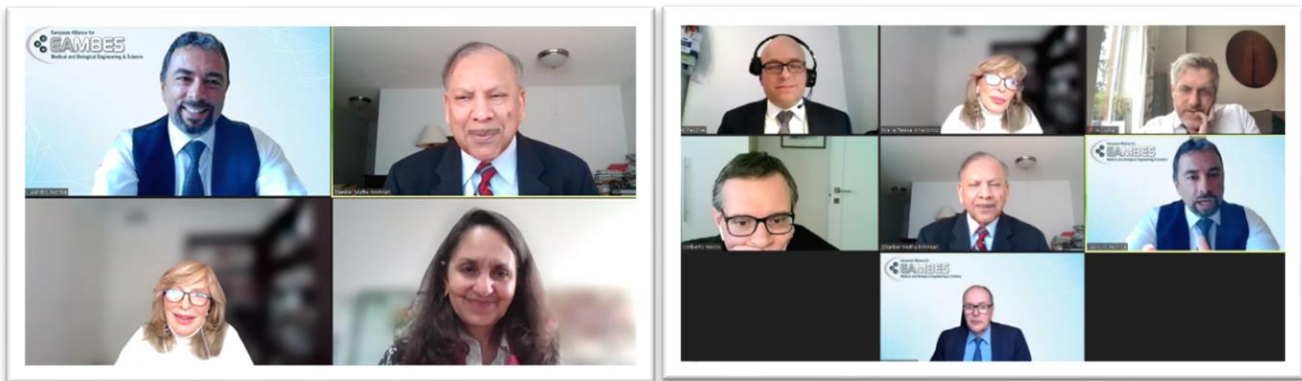


The speaker panel consisted of the following representatives:

¹ EAMBES YouTube channel: <https://www.youtube.com/@eambes8591/>

² - <https://www.youtube.com/playlist?list=PLGHqtFpFzTwcO-XHDSrptYoWBg52JGmHP>

- Timo Jämsä, EAMBES past-president
- Adriana Velazquez Berumen, Group Lead on medical devices and in vitro diagnostics at the World Health Organization
- Maria Teresa Arredondo, Professor at the Bioengineering and Photonics Department of the Universidad Politécnica de Madrid
- Nathalie Virag, Medtronic, Scientist specialised in cardiovascular disease and computer modelling, representing MedTech Europe
- Wil Woan, chair of Heart Valve Voice, a proactive EU Patient Organizations
- Umberto Nocco, President of the Italian Association of Clinical Engineering (AIIC)
- Lutz Peschke, Assistant Professor at the Department of Communications and Design at Bilkent University and coordinator of the PandeVita EU Project
- April Baller, Emergency Programme Infection Prevention and Control team leader at the World Health Organisation



A new meeting at the EU Parliament is scheduled for the 23rd of March 2023. This will again see the collaboration and participation of several stakeholders, from patients' organizations to the WHO, including MedTech and BME colleagues from different continents. The meeting will focus on the biomedical engineering contribution during COVID-19, on how BMES helps preventing and controlling future pandemics and other catastrophic events, while driving reflections on the environmental impact of healthcare technologies.

The meeting will be organised in collaboration with [MEP Stelios Kypouropoulos](#) (Greece), which is a Medical doctor with a genuine interest in BMES and research, and member of the *European Parliament Special Committee on the COVID-19 pandemic: lessons learned and recommendations for the future*.

Invitations and details will follow, for attending the meeting online or in person.

EAMBES Fellows

EAMBES Fellows have selected the Class of 2022 of new Fellows: 10 new Fellows were suggested, and all received 2/3 of the existing fellows votes to be eligible for nomination. Now, EAMBES Fellows include 109 prominent individuals who have distinguished themselves by identifiable contributions or accomplishments in Medical and Biological Engineering and Science.

The Fellows Seminar introducing the 2022 class of new fellows and having inauguration presentations of new fellows, was organized on the 29th of September 2022 as a special session at IEEE BHI Conference, which was held in Ioannina, Greece <https://bhi-bsn-2022.org/>.

The current Fellows committee consists of Françoise Peyrin (Chair), Jari Hyttinen (Past-Chair), Karin Wårdell (Past-Past Chair), Constantinos S. Pattichis (deputy-chair), Olof Lindahl and Guiseppe Baselli.

More information on EAMBES Fellows webpages: <http://eambes.org/Fellows>

Horizon Europe and H2020 projects

EAMBES **first Horizon Europe Project**, PandeVITA project (<https://www.pandevita.eu/>) has been successfully continuing its activities, stimulating the discussion among BMES, economy and policy makers.

EAMBES supported **new successful Horizon Europe proposal**, NoBoCAP, aiming at supporting EU Notifying Bodies, which will start in 2023. NoBoCAP goal is to develop contents helping EU Notifying Bodies in facing the emerging challenges arising from the new Medical Device Regulations MDR 2017/745 and 2017/746. Moreover, those contents will help innovators to increase the quality of their applications for obtaining CE Marking. EAMBES decided to be involved as sub-contractor in this new project. We hope this innovation regrading EAMBES participation to EU project will continue in future years. We can anticipate that with this project we will also stimulate the discussion around environmental sustainability of healthcare technologies.

EAMBES and Health First Europe (HFE)

EAMBES is an active member of **Health First Europe (HFE)**. HFE is a non-profit, non-commercial alliance of patients, healthcare workers, academics, healthcare experts and the medical technology industry. HFE is joining forces to transform health care through innovative solutions. <http://healthfirsteurope.eu/>.

EAMBES Conferences

As per tradition, IFMBE affiliated societies avoid hosting regional conferences in the same year when the IUPESM World Congress on biomedical engineering and medical physics runs. Therefore, EAMBES did not organise any event in 2022, since The IUPESM World Congress on Medical Physics and Biomedical Engineering 2022 (IUPESM WC2022), was held in Singapore from the 12th to 17th of June 2022. You can find details and photos on the WC2022 website: <https://wc2022.org/> Remarkable, was the contribution of European BMEs and Medical Physicist to the World Congress. Contributions span from individual papers to the organization of thematic sessions, and many EU scholars were involved as track chair or giving remarkable keynote speeches. Moreover, three EAMBES member societies bid for hosting the WC2028: Ireland, Belgium, and Sweden. Yet, the most voted bid by IFMBE and IOMP member delegates was the one from Mexico, which presented their bid for the third time (2015 in Canada, 2018 in Prague and finally 2022 in Singapore!) and was the only bid coming from Latin-American this time.

Yet, we learnt a lot from each other. For instance, the Swedish [bid](#) presented an outstanding hub for life science research and innovation, with world leading engineering and clinical research. The Irish

[bid](#) presented a fascinating ecosystem where clinical engineers, biomedical engineers and MedTech companies work together with their national health system and policy makers, becoming in few years one of the fast-growing hubs for medical devices in Europe. The Belgian [bid](#) presented also an exciting ecosystem for research and innovation, and strongly remarked the importance of our community to face new challenges related to the environmental impact of health technologies, which were really inspiring.

I am confident that the next bid from EAMBES members (to be presented in 2025 in Adelaide, Australia) will be better coordinated, supported and successful!

During the WC2022, IFMBE elected the new board of Directors and Officers (2022-2025), and it is remarkable the outstanding contribution of European BMEs, including: Ratko MAGJAREVIC (University of Zagreb, Croatia) IFMBE President; Leandro PECCHIA (University Campus Biomedico, Italy) IFMBE Secretary General; Olof LINDAHL (Umeå University Hospital, Sweden) IFMBE Treasurer; Ernesto IADANZA (University of Siena, Italy) IFMBE Council of Societies Chair; Paulo DE CARVALHO (University of Coimbra, Portugal) IFMBE Digital Health Division Chair; Lenka LHOTSKA (Czech Technical University in Prague, Czech Republic) IFMBE Regional Chair at the CoS; and Jari HYTTINEN (Tampere University of Technology, Finland) IFMBE AC Ordinary elected member. Many more are proactively contributing to IFMBE Divisions, Working Groups and Committees, and fostering the dialog with Medical Physicists as the IUPESM Secretary-General Magdalena STOEVA and IUPESM Past Vice-President Slavik TABAKOV.

We are sure they will all do very well, in this new term, and that EAMBES community will support them as much as we can. Feel free to reach any of them for questions or just to explore how you can be involved, if interested.

Meanwhile, be tuned and start preparing for contributing proactively to the coming IUPESM World Congresses which will be held in:

- Australia, Adelaide, 29th of September to the 4th of October 2025, <https://wc2025.org/>
- Mexico, Monterrey (to be confirmed), from the 4th to the 9th of June 2028, <https://wc2028.org/>

However, we are going to have soon new opportunities to meet in person. Please mark in your calendar the upcoming IFMBE/EAMBES conferences in 2023-2024:

- NBC2023 in Liepaja, Latvia, 12th-14th of June 2023. <https://nbc2023.lmifb.lv/>
- MEDICON2023 Sarajevo, Bosnia and Herzegovina, 14th-16th of September 2023. <https://www.medicon2023.com/>
- EMBEC2024, in Ljubljana, Slovenia, 9-13th of June 2024. <https://www.embec2024.org/>

EAMBES Journal

EAMBES is proud to have the Elsevier [Journal of Biomedical Signal Processing and Control \(BSPC\)](#) as its official Journal. The journal has been growing from strength to strength and is now recognized as one of the leading Journals in the field of Biomedical Signal Processing. The 2021 Journal Impact Factors (IF) showed a significant rise to 5.076, increasing 1.196 from that of IF 2020 3.88. Also, BSPC has ranked as Q1 in both Signal Processing and Health Informatics.

The journal Editor in Chief is Prof Panicos Kyriacou, former EAMBES President, which is also delighted to announce that through an initiative led by our EAMBES Fellows, a Special Issue on [Machine Intelligence in Biomedical Data Modelling, Processing, and Analysis](#) was commissioned earlier in the year. This SI was led by some of our Fellows, namely; Giuseppe Baselli, Ioanna Chouvarda, and Roberto Hornero. So far 15 full papers have been published in this review. Many congratulations to all Editors.

BSPC welcomes, and greatly values the collaboration with EAMBES, and is open to expressions of interest for Papers, Editorials, Reviews, and other timely Special Issues.

As EAMBES, we take this opportunity to thank Panicos for his endless effort and congratulate with him for the great achievements.

EAMBES activities for LMICs

EAMBES increased its activities for lower-income countries, supporting the Italian society of BME (Gruppo Nazionale di Bioingegneria, GNB) historical **summer school**, which focused on BME for SDGs.

All the lectures have been recorded and are available [here](#).

We hope you may find some time to review those contents and use it also in your thought programmes. We believe that this can become a valuable tradition enriching our community and students world-wide. We are sure that this will be a crucial topic for EAMBES also in the coming years.



The XLI Annual School 2022 – Biomedical Engineering for Sustainable Development, organised by the Italian Society GNB (Bioengineering National Group), has taken place in Brixen (Italy) & on-line from September 12 until September 15, 2022 and it has been sponsored by [EAMBES](#).

EAMBES councillors and elections

In 2023, we will run elections to welcome up to 3 new members in the Council. We hope that proactive members of our community would like to stand for these positions and take the lead of new activities in the coming years.

Especially, clinical engineering is not yet well represented, and we are still far from balancing gender and diversities, and to have a good representation from colleagues at different stages of their careers in our Council.

The call for nomination will be opened soon, with deadline in January. An electronic vote will be organised in February, and the new council will meet in March 2023 to welcome new members.

From March 2023, Prof Eleni Kaldoudi will be our new President, and we are sure that she will bring new vision and renewed positive ideas in EAMBES. A new President Elect will be also elected among the current Councillors.

EAMBES General Assembly 2022 and 2023

The General Assembly of EAMBES was held on March 14, 2022, as a virtual meeting. For the first time the **EAMBES GA was recorded and transmitted online**³.

The General Assembly 2023 will be organized as a hybrid meeting in Brussels on 22nd of March 2023, with online access. This will be a joint event, including Fellows' seminar and the Fourth EAMBES EPIG in BME meeting in the European Parliament on March 23rd.

Social media

EAMBES revamped all its media channels. Please, follow us, and should you have any contents or events to promote, please reach out technical manager Kallirroï:

- **Facebook:** <https://www.facebook.com/EAMBES>
- **YouTube:** <https://www.youtube.com/channel/UC6WbimEK4HDxEKKMMSvwdQQ>
- **Twitter:** https://twitter.com/eambes_org
- **Instagram:** <https://www.instagram.com/eambes/>
- **LinkedIn:** <https://www.linkedin.com/company/81962651/>

Concluding words: “estote parati” and BMES in 2023

Again, this was a busy year. If during a pandemic it can start a war, then we must be ready. Ready to contribute preventing, responding, and restoring health services in case of unprecedented circumstances. Ready to support each-other, working also in a scenario of limited resources. Yet, this is making our community even stronger and more cohesive, clearly demonstrating the impact and the importance of clinical engineering, biomedical engineering, and biomedical sciences.

³ Recording available here <https://www.youtube.com/watch?v=Z3pDNEP-Xz8>

Moreover, the past few years have made evident the importance of working as a community to promote and maintain a sustainable development. Biomedical engineering is an enabler for achieving several of the United Nation Sustainable Development Goals.

There are new challenges that our community will have to prioritise. Among other, the need to increase the affordability, sustainability, and the environmental impact, of our main products, health technologies, in order to leave this world a little better than we found it.

We would like to launch a challenge for BMES community, with the 2023 being focused on how to reduce the environmental impact of healthcare technologies. We can anticipate that EAMBES President has been discussing with the Chairs of forthcoming BME conferences, and further events will be organised on this topic, starting from the coming event in the EU Parliament in March 2023. We are confident that other stakeholders will accept our challenge. Regarding conferences, we are really happy to share with you long term plans, starting from Europe, but moving to Australia in 2025 and Mexico 2028. Making long-term plans is a wonderful way to overcome current difficulties and keep positive!

This is the last state of the alliance that Timo and I write as President and Past President. We both would like to thank you for the endless support and expressions of esteem. We like to wish Eleni great success for the coming years and renew our trust and support, being sure that her mandate will be very successful.

Finally, we would like to wish you all a peaceful and productive New Year 2023!



Leandro Pecchia, President

A blue ink signature of Leandro Pecchia, written in a cursive style.



Timo Jämsä, Past President

A blue ink signature of Timo Jämsä, written in a cursive style.

WHAT IS EAMBES?

European Alliance for Medical and Biological Engineering & Science

A non-profit scientific society to promote Biomedical Engineering (BME) and Medical and Biological Engineering and Sciences (MBES) in Europe.

Members are eminent scholars (EAMBES Fellows), National and international scientific societies, hospitals, universities or research institutions across Europe. Today, EAMBES counts 28 national & transnational societies and 37 academic and research institutions, and through them, thousands of biomedical engineers and scientists working in research and higher education or in hospitals (i.e., clinical engineers) in Europe. EAMBES is also affiliated to the International Federation of Medical and Biological Engineering (IFMBE), which is member of the International Union for Physical and Engineering Sciences in Medicine (IUPESM). EU BME societies represent the half of IFMBE members circa, and therefore the half of global BME and MBES community. This is a great honour, but also a great responsibility. Yet, we feel that we can do more to support global health and wellbeing. In fact, IFMBE is an NGO in official relations with the UN WHO, while the IUPESM is a member of the International Council of Science (ICS), which is the UN UNESCO umbrella organization fostering sciences. Many EAMBES members have been serving the UN, as independent consultants, or via IFMBE Divisions and working groups⁴.



EAMBES VISION

Medical and biological engineering and science are major enablers of modern medicine, which has made its main advancements in the past decades mainly because of the main output of BME.

Our community has direct impact on quality of life, safety and cost-effectiveness of healthcare services, with our effort in research, innovation, assessment, procurement and management of biomedical engineering main products, which are biotechnologies and medical technologies (MedTech) such as medical devices, personal protective equipment and digital health.

⁴ Further details on BME and UN collaboration (WHO and ILO), can be read:

<https://www.sciencedirect.com/science/article/pii/S135045331930164X>

EAMBES key enabling values are based our community:

- **know-how:** our community members have deep knowledge of science and engineering, and we know how to apply engineering methods and tools to solve biology and medicine problems, in order to make healthcare services and systems more safe, effective, cost-effective, resilient and universal.
- **Inter-disciplinary:** our community members are trained and work on a daily base with other STEM (science, technology, engineering and mathematics) scholars and practitioners, as well as biology and medicine scientists and healthcare professionals
- **Multi-disciplinary:** our community, and our former students, work proactively in academia, research institutions, hospitals, agencies, and manufacturers of MedTech and other Healthcare Technologies.

EAMBES focus activity areas in 2022-23 will include:



- **Supporting EU BMES ecosystem:** we will do our best to support proactively BME and BMES community in EU and globally.
- **Growing the next generation of EU BME leaders:** EAMBES will work proactively to foster a community of early career BMEs and MBES, new creating fora and schemes for empowering promising future leaders
- **Outreach:** we acknowledge that BME and MBES community is not yet proficient in promoting our activities and outstanding impact.

We commit EAMBES to do more and find new channels, to promote the great work done by our members, both withing our community and outside our ecosystem.

- **Understanding EAMBES:** our world is vertiginously dynamic. While some clusters of our community are still interrogating themselves to define biomedical engineering, and remark differences among bioengineering and clinical engineering, the world evolves at an unprecedented rate and our early career members are called to solve more fluid and complex challenges. For the remaining years of this presidency, EAMBES will do an extra effort to listen to all its components and try to put the bases for the most inclusive and harmonious spirit, firmly convinced that together we can do more and better, in the best interest of EU citizens and patients. EAMBES will be the house for all the different souls of our community.