

Welcome Address at EMBEC2017, Tampere, Finland

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by

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Professor Hyttinen,

Dear colleagues and friends:

The first European Medical and Biological Engineering Conference EMBEC took place in Vienna in 1999. At that time, many people were enthusiastic about the idea of the Common European House.

In 1989 this idea of a Common European House has been explained by the former Soviet President and later Nobel Prize winner for Peace in 1990, Mikhail Gorbachev, in a speech to the Council of Europe in Strasbourg. 40 years ago, also in Strasbourg, Charles de Gaulle, President of France, has spoken about Europe "that extends from the Atlantic to the Urals". Already in 1946, Winston Churchill, the famous Prime Minister of Great Britain, has presented his idea in Switzerland about "the re-creation of the European family".

In this Common European House most of the European countries shall live together in peaceful neighbourhood. One of the major objectives for living together has been the close and efficient collaboration for solving serious problems of common concern.

Such problems of common interest may be political problems, economical problems, social and health care problems, and still much more. But even our field Medical and Biological Engineering and Science is concerned by problems that require international collaboration and the exchange of ideas.

Taking that into account, the mission of EMBEC has been defined as:

"Advancement of Medicine and Health Care through Technology – the Challenge to Biomedical Engineering in Europe"

At the first EMBEC a discussion was started about a European platform for Medical and Biological Engineering MBE. The working committee was chaired by Niilo Saranummi, the former president of IFMBE. The discussion was strongly supported by Jean-Pierre Morucci and Dove Jaron, at that time presidents of IFMBE.

EAMBES, the European Alliance in Medical and Biological Engineering and Science was founded in 2003. It brings together national MBE societies, trans-European societies with specialization in certain MBE sub-disciplines, but also institutions and industry with interest in this field. For individuals, a Fellows division was set up.

Although EAMBES was established in partnership with IFMBE, it was clear that it must have the necessary independence in order to take care for European affairs and activities. EAMBES may be also understood as European Activities for Medical and Biological Engineering and Science.

EAMBES emphasizes on its homepage:

The main objective of EAMBES is to improve the health, wealth, and well being of the citizens of Europe by the application of Medical and Biological Engineering and Science.

The mission of EAMBES has been and still is

- to make possible the trans-European collaboration in an area as wide and fragmented as Medical and Biological Engineering and Science (MBES),
- and to speak with one voice, especially in European affairs and research programmes.

EAMBES has been the response to different European developments.

The European Union had strengthened its working power by the treaty of Nice, signed in 2001 by 15 member countries of the European Union.

The 6th framework programme was started in 2003. In this research funding programme MBE was not properly considered since it did not speak with one voice to the authorities of the European Union in Brussels.

Already in 1999 the Bologna process with the aim to ensure comparability in the standards and quality of higher-education qualifications had been signed by 29 European countries.

Therefore, it was high time to start European Activities in Medical and Biological Engineering and Science.

Much has been reached since 2003. However, the Common European House is still not completed. Some people even doubt whether the Common European House is still under construction. They believe that it is already in the phase of beginning destruction. At present it is more or less restricted to the countries of the European Union.

In accordance with the WHO European Region, EAMBES as organisation refers to a list with 53 European countries. At present EAMBES represents only 24 European countries by their national societies.

It seems that the idea of the Common European House has lost some of its attractiveness and straight forward power. The present political scenery is not really promoting the further completion of the Common European House.

But many challenges still need trans-European collaboration. One of those challenges is the mission of EMBEC, that is the Advancement of Medicine and Health Care through Technology.

The concerned problems are not and can not be restricted by national borders. And, of course, reached progress should become available for all European countries and their citizens.

However, more activities are required. To mention only two:

1. Our community should spend much stronger efforts for promoting young professionals in MBES. Chances for such careers are not only in the academic and in the industrial world. Especially MBES needs a broader representation in institutions for applied research. Those institutions are frequently the birth place of real innovations.
2. Many professional organisations have established their specific ethic codes. Some few examples:
 - Medical ethics identifies moral principles that apply values and judgments to the practice of clinical medicine and in scientific research.
 - Bioethics is concerned with controversial ethical issues emerging from new situations and possibilities brought about by advances in biology and medicine.
 - Engineering ethics is the field of applied ethics and a system of moral principles that apply to the practice of engineering.

None of those codes is applicable to Medical and Biological Engineering and Science or helpful for MBES professionals. There is no specific ethic code for Medical and Biological Engineering and Science. Many of the EAMBES fellows have the required experience and also the high reputation in our community which are needed for the discussion of such an ethic code.

This activity may be coordinated with IFMBE if it is also interested in that subject. However, we must be aware of differences due to Western and European cultural and historical impacts.

Progress in medicine and in technology, in science and in applied research needs not only international collaboration, but also financing by international funding programmes. Furthermore, progress is based on the exchange of ideas and the critical discussion of hypotheses and experimental results. Such personal communication requires meetings and conferences like EMBEC.

Article 3 of the Constitution of EAMBES says:

To achieve these goals, EAMBES will develop the following activities:

1. Organise expert meetings (listed on the first position)

EMBEC and EAMBES have been a couple from the beginning. EAMBES is now acknowledged as a strong European player. It has reached a powerful position in Brussels. It is highly appreciated as the voice of medical and biological engineering, of medical and health care technology, and as a non-profit organisation that is not lobbying for commercial interests.

Time has come for EAMBES to increase its visibility. This can be achieved by enhancing its efforts for trans-national cooperation, for the exchange of ideas, and for the promotion of young professionals in the field.

Conferences like the EMBEC2017 are perfectly suitable for meeting those goals.

The non-profit organisation EMBEC is proud to sponsor the prizes for the two student competitions here in Tampere.

The EMBEC concept has proven to be successful. The conferences have been the meeting platform for the European MBE community, but been open for participants from all over the world. This concept should also be followed in the future.

EMBEC conferences should be free from any discrimination, may this be related with nationality, ethnic origin, religion, gender, or any other feature. They should represent the whole field, even in its fragmentation, and not only those sub-disciplines which at present are dominant. The conferences should help to identify new and promising developments. The scientific level should meet high requirements and especially help young professionals to assess their position in the international scope.

At the first EMBEC 1999 a fascinating keynote lecture was given by Professor Richard Ernst, Nobel Prize winner in chemistry in 1991. The subject of his talk was "From NMR to MRI". Here in Tampere we have enjoyed another exciting keynote lecture by Professor Stefan Hell. Professor Hell has also been distinguished as Nobel Prize winner in chemistry in 2014.

We highly appreciate the participation of these scientists with their knowledge and high international reputation in our conferences. Therefore, I want to say:

Professor Hell, many thanks for your wonderful lecture.

Last but not least I want to thank Professor Hyttinen and all his colleagues for organising this wonderful conference, the EMBEC2017, here in Tampere. I am sure that this conference will become another great success in the EMBEC conference series.

Tampere, June 12, 2017

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Helmut Hutten was born in Germany in 1936. He received his "Dipl. Ing." degree from the now Technical University in Karlsruhe in 1961, and his "Dr.-Ing." degree from the now Technical University Darmstadt in 1969. Between 1961 and 1964 he was working in a company before leaving to the Institute of Physiology at the University in Mainz. He completed his Habilitation with the *venia legendi* in "Biomedical Engineering and Biophysics" in 1972 and became a professor in the Medical Faculty of the University of Mainz. 1991 he was nominated the chair professor for Biomedical Engineering at the University of Technology in Graz and retired in 2004 as professor emeritus. At present he is still active as external examiner for foreign universities and as consultant for companies.

He has served in many functions in different organizations. He was member of the AC of the German Society for Biomedical Engineering for more than 10 years, president from 1991 until 1993, and past-president from 1993 until 1995. From 1994 until 2000 he was member of the AC of IFMBE and chairing the Working Group for European Activities. In recognition of his merits he was elected as fellow of the International Academy of Medical and Biological Engineering. From 2000 until 2003 he was member of the AC of IUPESM and chairing the Regional Development Committee. As consultant he was active in more than 100 projects for different governmental and non-governmental research funding organizations. From 1975 until 1996 he was Editor-in-Chief of the journal *Medical Progress through Technology* and reviewer for many national and international journals. He was organizer of different national and international conferences, primarily the 1st and 2nd European Medical and Biological Engineering Conference EMBEC in Vienna in 1999 and 2002, respectively. 2005 he was Honorary President of the EMBEC'05 in Prague. Since 1999 he is president of the non-profit organization EMBEC. He was member of the EAMBES Protem group and the first treasurer of EAMBES after its launching. He was the preliminary chair of the EAMBES fellows division. He was member in the German DKE standardizing committee for medical equipment for more than 10 years and head of the Notified Body 0636 until 2004. He and his students have received different awards. He was distinguished by a honorary doctor and by lifelong honorary membership in different organizations.

He has published more than 100 articles in reviewed journals and 21 books or book chapters. He is author or co-author of more than 280 published presentations in proceedings and of more than 220 other publications. He is author or editor of several books. His scientific topics are medical electronics and instrumentation, pacemaker technology, blood flow measurement and microcirculation, analysis of physiological systems, computer-assisted modelling and computer-assisted therapy management with special regard to diabetes mellitus, dialysis and cardiomyopathy, biotelemetry and telemedicine, and health care technology assessment. He has more than 10 patents primarily in the field of cardiac pacemakers.