

NON-GOVERNMENTAL COOPERATION IN MEASUREMENT AND INSTRUMENTATION

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ABSTRACT

IMEKO is a non-governmental federation of 35 national Member Organisations, individually concerned with the advancement of measurement technology and instrument engineering. The Member Organisations are scientific/technical societies or committees. The membership consists of the representatives of metrological institutions, higher education, industry and the users of instruments. The paper deals with the objectives of the Confederation, informs on the structure and financial background, on IMEKO publications and on the activities of 20 Technical Committees. Finally the future World Congresses, different scientific services, membership development, events and co-sponsorships are discussed.

1. DEFINITION

The year 2003 has marked the 45th anniversary of the birth of IMEKO. Founded in 1958, IMEKO is a non-governmental federation of 35 Member Organisations individually concerned with the advancement of measurement technology. Its fundamental objectives are the promotion of international interchange of scientific and technical information in the field of measurement and instrumentation and the enhancement of international co-operation among scientists and engineers from research and industry.

With a different approach, IMEKO is a global network, a forum where instrument makers, users, research and development experts, legal metrology scientists and university professors meet and exchange ideas.

IMEKO's responsibility is to consider the challenges of measurement science and technology coming from important application areas and to form visions for the future development of human society.

2. STRUCTURE

A. MEMBER ORGANISATIONS (MO-S)

Though the participation in IMEKO activities is available to anybody without restriction, the work is based on using the human resources and knowledge base of the MO-s, in favour of the improvement of the MO-s.

MO representatives constitute the General Council, MO-s pay a modest contribution to the general expenses, MO-s undertake to organise IMEKO events and mainly MO-s delegate members to Technical Committees. The 36 MO-s are representing all the five Continents.

IMEKO is continuously looking for new Member Organisations, to support the global understanding of our disciplines.

Albania	Greece	Portugal
Australia	Hungary	Romania
Austria	Israel	Russia
Belgium	Italy	Slovakia
Brazil	Japan	Slovenia
China	Kenya	South Africa
Croatia	Korea	Spain
Czech Republic	Nigeria	Sweden
Egypt	Mexico	Switzerland
Finland	Thailand	Turkey
France	The Netherlands	United Kingdom
Germany	Poland	USA

Table 1. Member Organizations

B. OFFICERS, BOARDS AND COMMITTEES

Officers:

President - Prof. dr .ir. Leo Van Biesen (Belgium)

Immediate Past President - Prof. dr. Manfred. Peters (Germany)

{President Elect – Dr. Hüseyin Ugur (Turkey) conditional up to Mai 2005 }

Vice President – Prof. dr. Mauricio Frota (Brazil)

Vice-President – Prof. dr. Antonio Serra Cruz (Portugal)

Secretary General – Prof. dr. Tamás. Kemény (Hungary)

Treasurer - Prof. dr. P. Herbert Osanna (Austria)

Permanent organs:

General Council - the supreme governing body. The GC consists of one or two delegates from each Member Organisation and holds yearly Sessions.

Secretariat - the executive body headed by the Secretary General. It carries out the decisions of the GC in accordance with the resolutions passed at Sessions.

Advisory Board - to formulate proposals on the policy and strategy of IMEKO, chaired by the Immediate Past President.

Technical Board - to analyse and to support the activity of the Technical Committees, chaired by the President Elect.

Drafting Committee - responsible for the Resolutions and Minutes of GC Sessions.

Credentials and Membership Committee - to confirm the validity of credential letters of GC delegates and to examine applications for membership.

Technical Committees (TC-s)

The activity of IMEKO is basically carried out through the Technical Committees, which organise symposia, conferences, workshops, seminars on specific topics at regular intervals; publish proceedings of events, textbooks, glossaries, studies, etc. to realise the objectives set out in the Constitution and By-Laws.

TC-s are traditionally numbered by the sequence they have been set up. We are striving to cover all important fields and follow the new trends, yet the picture is rather uneven. Some TC-s are really centres of world excellence, some others have limited activities. Being a non-governmental organisation, the success depends on finding active and widely recognised chairmen and members.

TC1 - Education and Training in Measurement and Instrumentation

TC2	-	Photonics
TC3	-	Measurement of Force, Mass and Torque
TC4	-	Measurement of Electrical Quantities
TC5	-	Hardness Measurement
TC6	-	<i>Vocabulary Committee</i> (activity suspended)
TC7	-	Measurement Science
TC8	-	Trace ability in Metrology
TC9	-	Flow Measurement
TC10	-	Technical Diagnostics
TC11	-	Metrological Infrastructures
TC12	-	Thermal and Temperature Measurement
TC13	-	Measurements in Biology and Medicine
TC14	-	Measurement of Geometrical Quantities
TC15	-	Experimental Mechanics
TC16	-	Pressure and Vacuum Measurement
TC17	-	Measurement in Robotics
TC18	-	Measurement of Human Functions
TC19	-	Environmental Measurement
TC20	-	Measurement Techniques for the Construction Industry.
TC21	-	Mathematical tools in Measurements

Numerous TC-s have already organised over 20 international conferences, some having over 400 participants from over 40 countries and producing proceedings of about 500 pages each. A royalty of 5 % of the registration fees helps to reduce the financial burden of MO-s to cover the overall expenses of the Confederation.

3. WORLD CONGRESSES

As reflected by the titles of the last World Congresses, these global events select noble, humanitarian scopes, to demonstrate how our field can serve the improvement of the quality of life. Primarily the TC-s are determining the main chapters, yet the difference between a TC event and a World Congress is, that while TC events are concentrating on a narrow topic in full depth, the Congresses offer cross-fertilisation of different fields and a possibility to the participants to achieve an overall view on the progress as a whole and a vision of further development.

IMEKO XV Osaka, June 13-18, 1999

- Measurement to Improve the Quality of Life in the 21st Century
- Measurement Helps to Coordinate Nature with Human Activities

IMEKO XVI Vienna, Sept 25-28, 2000

- Measurement Supports Science, Improves Technology, Protects Environment
- Provides Employment Now and in Future

IMEKO XVII Dubrovnik, June 22-27, 2003

- Metrology in the 3rd Millennium

IMEKO XVIII Rio de Janeiro, September 17-22, 2006

- Metrology for a sustainable development

4. PUBLICATIONS

It is strength of IMEKO that almost 100 % of over 40 years activity is fully documented in the

following publications:

ACTA IMEKO - proceedings of the World Congresses

IMEKO TC Events Series - proceedings of TC events

MEASUREMENT -quarterly journal, published by Elsevier Science Ltd, Oxford

IMEKO BULLETIN - semi-annual newsletter

5. INTERNET

Thanks to outstanding voluntary work almost total information is available from the web. The main entrance is www.imeko.org. This official IMEKO homepage (there are other local websites dedicated to IMEKO) is based on a MySQL relational database system and the PHP programming language. The main structure is depicted in Figure 1. The HTML content sent to a browser requesting a special page is in most of the cases generated dynamically. Only a few pages are static ones. This allows the have the pages more up-to-date and to reduce the maintenance effort. The layout is checked with the following browsers: Microsoft Internet Explorer version 4 or higher, Netscape Navigator version 4 or higher, Mozilla (all versions). A screen resolution of 1024 x 768 is recommended, but not necessary. There are different databases in MySQL containing information related to IMEKO as shown in Figure 1.

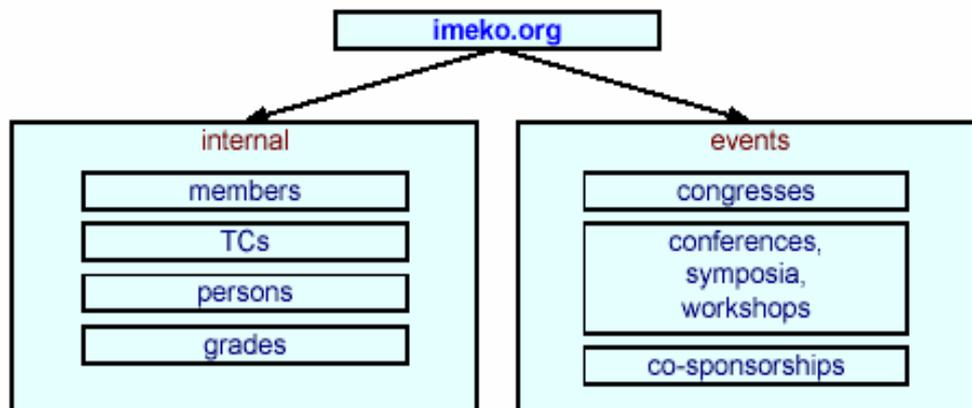


Figure 1. Databases of the IMEKO website.

The databases also include information about relations. If, for example, a person from the "persons database" is the contact person for an event from the "congresses database", then the event data set in the latter contains the key number of the person. If the address of the person changes, the up-date will be done in the "persons database" and the congress contact person will be displayed with the new address. All data is stored only in one place. The PHP language in co-operation with MySQL allows extracting some information from the whole database according to given conditions. A good example for this is the "Event finder". A web form asks for the conditions to be met (something like: all events in 2004, all events of TC1 in 2005 or all events in China in 2004) and shows the result after submitting the form. The main structure of the IMEKO website is shown in the Figure 2.

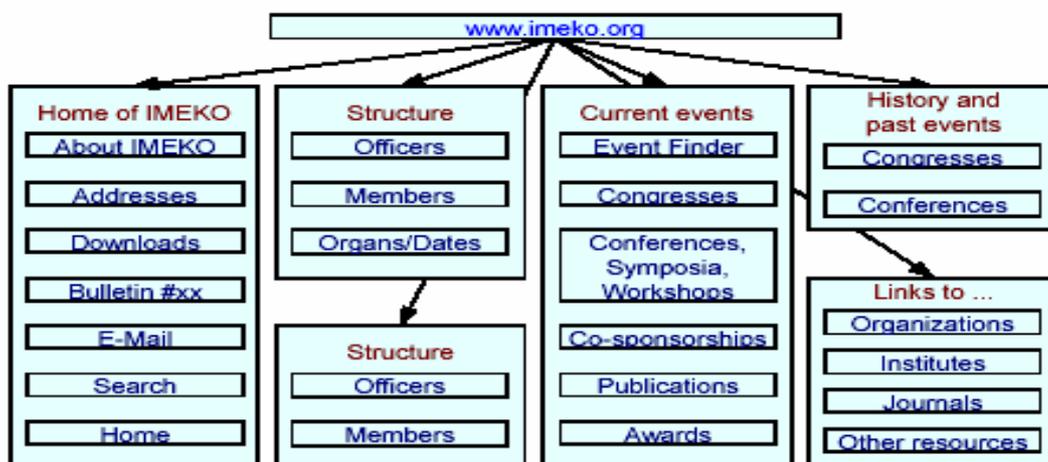


Figure 2. Main structure of the IMEKO website.

Prof. Aumala was so kind and linked a Finnish web site with the multilingual **Dictionary of Basic and General Terms in Metrology**. Based on the original English, he organised the translation to many other languages. At the moment Catalan, Czech, Finnish, French, German, Hungarian, Italian, Lithuanian, Portuguese, Spanish, Swedish and Russian versions are available from the web. Assistance with additional languages is welcome.

It is planned to establish an **IMEKO Specialists Data Base** as service to the measurement and instrumentation community. This service can include the individuals from the "persons database" who are listed by personal data, affiliation and keywords and should be closely linked with another new service which will be made available in the next future, the new IMEKO VIP service at www.imeko.org/vip/html.

The new imeko-vip site is a special offer for people who want to use and/or support IMEKO as a forum for the information interchange. This site is based on free content management software called „**Postnuke**“. It also uses the MySQL database and PHP.

The difference between www.imeko.org and imeko-vip is that users can be registered with imeko-vip and have access to additional functions. The site has a modular structure. The Webmaster can add new modules or configure the existing ones in order to meet the given requirements.

Some special modules that can be useful for IMEKO are:

- Downloads: mostly all downloads can be made available via imeko-vip
- **FAQ**: some common questions and answers about IMEKO (not everybody will read the Constitution and By-Laws) and its web site can be interesting for newcomers.
- News: especially news for the IMEKO community, not that for the public (compare with the news at www.imeko.org)
- Reviews: information about new publications, possibly with links to the download section.
- Sections: this module should be used by the TCs
- Topics: can be used for problems („I need to solve a measurement problem!“ „I’m looking for project partners!“ „Does anybody offer special services in measurement technology?“)
- **Web Links**: all links to other interesting web sites
- Registered user can change the layout of the site.

Some of the modules and functions are accessible for all visitors of imeko-vip, some functions require the user to be registered. The administrator can configure this.

Additional functionality:

Forum: registered user can use the discussion board (forum) to discuss about problems related to special topics. E-mails will be sent automatically by the system or by initiative of the moderator of a forum (not necessarily by the webmaster) to registered users, for example, when new contributions are submitted. This function can be used as an email service for the users.

The information does not necessarily come from the Webmaster, most of the contributions are initiated by the registered users and the Webmaster activates the new downloads, reviews, topics and so on. The administrative overhead is minimized and the content is more rich and up-to-date.

All people who want to support IMEKO and its objectives are invited to register as users and to bookmark www.imeko.org/vip/html. Nobody is forced to register; the registration is optional and can be removed at any time. A user, who wants to register, must enter a valid e-mail address, because the password for the user is generated by the system and will be sent to this address.

One great feature is the web interface: the administration is carried out via Internet and browser software from any place in the world only by logging in as administrator.

6. AWARDS

Traditionally the following awards are festively handed over at the closing ceremony of World Congresses:

Distinguished Service Award - to be bestowed upon persons for outstanding services to IMEKO, active for many years as well-known specialists in the field of measurement.

György Striker Junior Paper Award - donation of the Founder and first Secretary General of IMEKO and his wife, to be given to one junior university staff member under 35 years of age, whose paper reflects a deep understanding knowledge of the theme of a World Congress.

7. QUALITY POLICY

IMEKO tries continuously to improve the quality of all activities concerning organisation and conduction of its events. For this end, IMEKO has implemented a quality system, based on ISO 9001, documented within the IMEKO Quality Manual (courtesy of the Austrian MO). Its execution is an ongoing process, the Manual will soon be available from the Secretariat.

8. IMEKO NATIONAL COMMITTEES

As a best practice, IMEKO encourages the MO-s to establish a National IMEKO Committee, involving the one or two GC delegates, the TC and other IMEKO Committee members and representatives of the member Society and other non-member Societies who may wish to get enriched by IMEKO information. This is the most efficient way of exhausting network efficiency.

9. INTERNATIONAL CONTACTS

IMEKO is one of the five Sister Federations within FIACC (Five International Associations Coordinating Committee, further consisting of IFAC (International Federation of Automatic Control), IFIP (International Federation for Information Processing), IFORS (International Federation of Operational Research Societies) and IMACS (International Association for Mathematics and Computers in Simulation).

IMEKO also maintains friendly working contacts with OIML, BIPM, the IEEE Instrumentation and Measurement Society and the IEEE Engineering in Medicine and Biology Society. The way of co-operation is organising joint events, co-sponsoring events and inviting keynote speakers to each other.