

2014: IMEKO IN BENEVENTO

1. Organisational update

International Measurement Confederation IMEKO is a federation of national measurement-related organisations and institutions from 38 countries: Albania, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, China, Croatia, Czech Republic, Egypt, Finland, France, Germany, Greece, Hungary, Italy, Japan, Kazakhstan, Kenya, Mexico, Nigeria, Poland, Portugal, Romania, Russia, Rwanda, Serbia, Slovakia, Slovenia, South Africa, South Korea, Spain, Sweden, Switzerland, Thailand, Turkey, and United Kingdom. Poland is represented in IMEKO by Polish Society for Measurement, Automatic Control and Robotics (POLSPAR).

The principal forms of IMEKO activity are world congresses, held every three years, and symposia organised by IMEKO technical committees (listed in Table 1) in the years between two consecutive congresses. The next IMEKO World Congress will be held from August 30 to September 4, 2015, in Prague, Czech Republic; so, no symposia of technical committees are scheduled for 2015.

Table 1. Technical committees of IMEKO

TC1	Education and Training in Measurement	TC13	Measurements in Biology and Medicine
TC2	Photonics	TC14	Measurement of Geometrical Quantities
TC3	Measurement of Force Mass and Torque	TC15	Experimental Mechanics
TC4	Measurement of Electrical Quantities	TC16	Pressure and Vacuum Measurement
TC5	Hardness Measurement	TC17	Measurement in Robotics
TC6	Vocabulary Committee	TC18	Measurement of Human Functions
TC7	Measurement Science	TC19	Environmental Measurements
TC8	Traceability in Metrology	TC20	Energy Measurement
TC9	Flow Measurement	TC21	Mathematical Tools for Measurements
TC10	Technical Diagnostics	TC22	Vibration Measurement
TC11	Metrological Infrastructures	TC23	Metrology in Food and Nutrition
TC12	Temperature and Thermal Measurements	TC24	Chemical Measurements

IMEKO is currently offering two main channels for publication of measurement-related contributions, *viz.* an e-journal *Acta IMEKO* (<http://acta.imeko.org/index.php/acta-imeko>) and the Elsevier journal *Measurement*. If the latter is concerned, its Impact Factor, announced in August 2014, reached 1.526 (as compared to 1.130 in 2013), and its current rejection rate is 67%; the number of papers published in 2014 is going to exceed 600.

2. 2014 meetings of the IMEKO governing bodies

The Organisation is run by several governing bodies whose duties are defined in the *IMEKO Constitution and By-laws* (available in section *Downloads* at <http://www.imeko.org/>): the General Council, the Board of

Officers (Table 2), the Advisory Board, and the Technical Board. The 2014 convention of the IMEKO governing bodies took place in Benevento (Italy) on September 12–14, 2014. Its programme included many issues of importance both for the current functioning of IMEKO and for its future. The following decisions of the General Council seem to be of particular significance:

- Kenneth T. V. Grattan (United Kingdom) has been elected President of IMEKO for the term of office 2015–2018 (to replace Klaus-Dieter Sommer who resigned for health reasons).
- The *IMEKO Constitution and By-laws* have been revised as to meet legal requirements of the Municipal Tribunal in Budapest (a mandatory operation since IMEKO is registered under Hungarian law).
- The necessity of further-going, substance-related, revision of the *IMEKO Constitution and By-laws* has been stated; a working group – Leo van Biesen (Belgium), Francisco Righini (Italy) and Roman Z. Morawski (Poland) – has been trusted with the task of drafting the revised version of those documents.
- The guide for organisers of IMEKO events has been updated. Moreover, the guidelines concerning the communication in IMEKO, the guidelines on taking General Council decisions by correspondence, and the guidelines for financial management of IMEKO have been adopted.

Table 2. IMEKO officers

President: Pasquale Daponte (Italy)	
Vice-President in Charge of XXI World Congress: Jaromir Volf (Czech Republic)	Vice-President for Publications: Paul P.L. Regtien (The Netherlands)
Vice-President for External Relations: Hidetaka Imai (Japan)	President-Elect, Chairman of the Technical Board: Kenneth T. V. Grattan
Chairman of the Advisory Board, Past President: Dae-Im Kang (South Korea)	Treasurer: Roland Collay (France)
Secretary General: Zoltán Zelenka (Hungary)	Information Officer: Dirk Röske, Germany

3. TC4 Symposium and Workshop

Immediately after the annual convention of the IMEKO governing bodies, the 20th IMEKO TC4 Symposium and 18th IMEKO TC4 International Workshop on ADC Modelling and Testing were held in the same place, *i.e.* in the historical buildings of Benevento. According to the well-established tradition, those events cover theoretical and practical aspects of electrical and electronic instrumentation, related measurement-and-control technologies, as well as their applications. This-year theme of the Symposium, *Research on Electrical and Electronic Measurements for the Economic Upturn*, referred to the global economic situation which requires innovative solutions also in the area of measurement technologies, being a significant driving force of scientific, industrial and daily-life enterprises – an important factor of sustainable development in almost any field of human activity. This year, a remarkable improvement was introduced to the Symposium programme, *viz.* numerous special sessions – mainly application-oriented sessions dedicated to transdisciplinary research – were added. The following

exemplary titles of those sessions seem to well illustrate the motivation behind this innovation: *Forensic Data Acquisition Analysis and Measurement*, *Multifunctional Photonic Sensors*, *Synchronization Service for Measurement and Monitoring*. Some new topics – such as software-related measurement aspects – appeared also in the regular sessions which traditionally had been focused on automatic measuring systems, electromagnetic compatibility, and measurements for health and environment. Two special tracks of sessions were intended to attract researchers working outside of metrology but using methods and instruments for measuring electrical quantities. The first of them, *Theoretical and Experimental Physics Meets Metrology Engineering at The Particle Accelerators Frontiers for New Knowledge*, was aimed at the mutually beneficial exchange of knowledge and experience among the experts in metrology and the physicists working on high-challenging scientific problems. Similarly, the second special track, *Advanced Measurements in Geotechnics*, was intended to integrate research efforts of engineers and scientist interested in experimental investigation of geotechnical problems. Among the highlights of the Symposium, the two keynote plenary lectures should be mentioned, viz.: "The Higgs boson and beyond: the physics of the Large Hadron Collider experiments at CERN" by Giuseppe Iacobucci from the University of Geneva and CERN, and "Pulse metrology" by Nicholas G. Paulmier from NIST.

The Benevento Workshop on ADC Modelling and Testing was mainly focused on new methods for non-conventional ADC architectures. A half-day session devoted to software for ADC testing – the session combining hands-on experience with five lectures – was an innovation of this-year Workshop.

The TC4 events in Benevento attracted 228 attendees (including 20 organising committee members). The book of proceedings contains 210 papers (selected out of 243

submitted manuscripts) and five invited lectures. They are authored by representatives of 38 countries. The largest share of published papers belongs to Italy (56.6%) followed by Switzerland (9.1%) and Poland (3.9%). Four more countries contributed at the level higher than 2%, viz.: France (2.7%), Germany (2.3%), Spain (2.1%) and Romania (2.0%). The best papers will be selected by an *ad hoc* committee appointed during the TC4 board meeting, and their authors will be invited to submit significantly extended versions of the conference contributions to the journals *Measurement* and *Acta IMEKO*. Some of the papers were already awarded during the Symposium closing session, viz.:

- Laurent Alain Francis received the Best Paper Award for the contribution "A self-oscillating system to characterize liquid salinities within a single triangular waveform signal";
- Daniela Istrate received the Best Woman Paper Award for the contribution "Measurement method of AC current up to 1 MHz";
- Michael Löffler received the Young Researcher Paper Award for the contribution "Measurement of the magnetization of thin-film samples subjected to mechanical stress";
- Věra Nováková Zachovalová received the Best Poster Award for the contribution "Design, stability analysis and uncertainty contribution of a voltage divider designed for a phase meter".

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IMEKO in Benevento