

REPORT FROM THE BIPM

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OUTLINE

- ⊕ **BIPM Membership and the CIPM MRA**
- ⊕ **BIPM activities**
- ⊕ **Significant Outcomes**
 - **CIPM**
 - **JCRB**
- ⊕ **Events**

BIPM MEMBERSHIP AND THE CIPM MRA



BIPM Membership

BIPM Members 53

 Argentina	 France	 The Netherlands
 Australia	 Germany	 New Zealand
 Austria	 Greece	 Norway
 Belgium	 Hungary	 Pakistan
 Brazil	 India	 Poland
 Bulgaria	 Indonesia	 Portugal
 Cameroon	 Iran, Islamic Republic of	 Romania
 Canada	 Ireland	 Russian Federation
 Chile	 Israel	 Serbia
 China	 Italy	 Singapore
 Croatia	 Japan	 Slovakia
 Czech Republic	 Kazakhstan	 South Africa
 Denmark	 Korea, DPR of	 Spain
 Dominican Republic	 Korea Republic of	 Sweden
 Egypt	 Malaysia	 Switzerland
 Finland	 Mexico	 Thailand

Associates to the CGPM 27

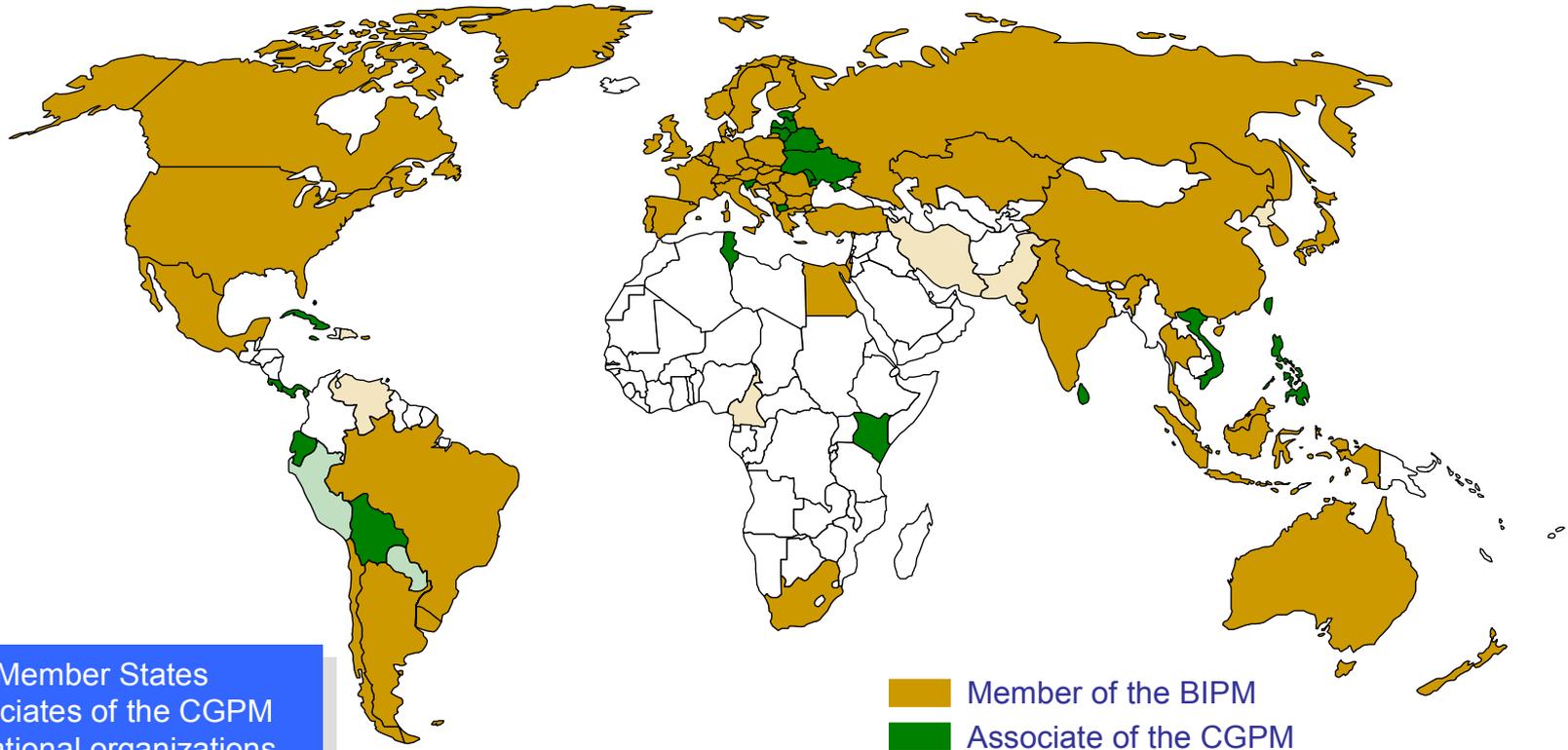
 Albania	 Lithuania
 Belarus	 Macedonia, the FYR of
 Bolivia	 Malta
 Chinese Taipei	 Moldova, Republic of
 Costa Rica	 Panama
 Cuba	 Paraguay
 Ecuador	 Peru
 Estonia	 Philippines
 Hong Kong (China)	 Slovenia
 Georgia	 Sri Lanka
 Jamaica	 Tunisia
 Kenya	 Ukraine
 Latvia	 Vietnam
	 CARICOM

2008

2009



CIPM MRA Participation



48 Member States
25 Associates of the CGPM
2 international organizations
(197 NMIs + DIs)
96% of the 2008 World GDP



BIPM ACTIVITIES



3rd AFRIMETS General Assembly
Working Group Meetings
12-14 July 2009, South Africa

Secondees 2008 - 2009

Name	Country	Organization	Dates		BIPM Section
Durim KRYEZIU	Albania	INP	02/2008	12/2008	Ionizing Radiation
Michael Streak	South Africa	NMISA	03/2008	04/2009	JCDMAS/QS
Luis MUSSIO	Uruguay	LATU	03/2008	03/2010	JCRB
Pedro ESPINA	USA	NIST	04/2005	03/2010	International Liaison
Chiharu URANO	Japan	NMIJ	09/2007	03/2008	Electricity
Jose Alvarez Romero	Mexico	ININ	10/2008	01/2009	Ionizing Radiation
Grzegorz Ochman	Poland	GUM	09/2008	11/2008	Chemistry
Chen Dazhou	China	NIM	08/2008	12/2008	Chemistry
Chen Dazhou	China	NIM	2009	6-months	Chemistry

SIGNIFICANT OUTCOMES

14-17 October 2008, BIPM

⊕ Documents approved:

- CIPM MRA – G-01, “**Guide to the implementation of the CIPM MRA**”
- CIPM MRA – D-04, “**CMCs in the context of the CIPM MRA**”
- CIPM MRA – D-01, “**Rules of Procedure for the JCRB**”

⊕ RMO approval:

- The CIPM approves the participation of **AFRIMETS** in the JCRB as an **expansion of SADC MET**.

⊕ Documents referred to the JCRB:

- CIPM MRA – P -01, “**Procedure for approval of a new RMO**”.



⊕ **BIPM's measurement uncertainties will be associated with the relevant KCDB pages and we will present our quality system.** (CIPM 2007)

- BIPM Calibration and measurement services published in the BIPM website

The screenshot shows the BIPM website's search interface. The page title is 'Calibration and Measurement Capabilities Mass and related quantities'. The search form includes a 'Country' dropdown menu, a 'Search the database' button, and three dropdown menus for 'Branch', 'Service', and 'Sub-service', all currently set to 'All'. A 'Reset all' and 'Search' button are at the bottom of the search form. On the left sidebar, under 'Metrology area', the link 'Traceability to the SI through the BIPM' is highlighted with a red circle, and a red arrow points from this link to the text on the left. Other links in the sidebar include 'AUV', 'EM', 'L', 'M', 'PR', 'QM', 'RI', 'I', 'LTC', 'Contextual links', 'Find my NMI', 'CIPM MRA', 'Participants in the CIPM MRA', 'ICRB', 'Glossary', and 'Contact us'.

16-17 March 2009, BIPM

- ⊕ **Action 22/1** The RMOs will send feedbacks to the KCDB office about the new **FAQ facility**.
- ⊕ **Action 22/2** The Executive Secretary will produce a new draft version of CIPM MRA – D-05, **Comparisons in the CIPM MRA**, and circulate to the RMOs. The RMOs will send the comments before the end of July.
- ⊕ **Action 22/3** RMOs will send comments on **ILAC document for accreditation of NMIs**.
- ⊕ **Action 22/4** COOMET will inform the other RMOs about other related activities in the same week of the JCRB.

16-17 March 2009, BIPM

- ⊕ **Resolution 22/1** The Executive Secretary will send to the RMO delegates an advance copy of the **JCRB news section of the KCDB newsletter**.
- ⊕ **Resolution 22/2** (next slide).
- ⊕ **Resolution 22/3** The JCRB recommends the BIPM to participate in the preparation of the **ILAC guide for accreditation of NMIs**.

16-17 March 2009, BIPM

⊕ **Resolution 22/2** The JCRB noting that:

- its statement about a five year review period for CMCs may have been misinterpreted,
- that RMOs review of quality systems occurs every five years, and
- that recently it was introduced a system of annual reports from NMIs in which NMIs report any changes which may affect CMCs,
- resolves that: the **periodical review of published CMCs is performed by the RMOs** and recommends that RMOs review the templates used for these annual reports to ensure that NMIs address this issue. The JCRB further notes that in some areas, CCs may wish to make a specific decision on the review period and review procedure which applies to their community.

16-17 March 2009, BIPM

- ⊕ **Recommendation 22/1** The JCRB recommends the CIPM to approve document CIPM MRA-P-01, **“Procedure for approval of new RMOs”**.
- ⊕ **Recommendation 22/2** The JCRB recommends the CIPM to adopt the following **policy for traceability in CIPM MRA context**.

⊕ **National Metrology Institutes (NMIs) and Designated Institutes (DIs) publishing Calibration and Measurement Capabilities (CMCs) in the BIPM Key Comparison Database (KCDB) have **two choices for establishing their traceability routes to the SI:****

1. **via a primary realization of the unit of measurement** concerned or by applying primary "higher-order" methods, in which case traceability must be declared to its own demonstrable realization of the SI;
2. **via another NMI or DI having CMCs published in the KCDB** or through calibration and measurement services offered by the BIPM, in which case the level of uncertainty in the relevant area must be appropriate.

Note 1: Paragraph 1 includes the case of NMIs or DIs using CRMs or high purity primary chemical references obtained from sources that are not recognized under the CIPM MRA only when the NMI or DI has the recognized capability to analyse the composition by itself.

Note 2: In Paragraph 2, where traceability to the SI is through a CMC published in the KCDB or a BIPM measurement service, the NMI or DI must still make a full assessment of the uncertainties involved in its measurement activity and must openly declare its chosen traceability route when submitting its CMCs for intra- and inter-regional reviews.

Note 3: For auxiliary influence quantities, not part of the main traceability path to the SI for a particular measurand and with uncertainties that can be shown to make only a minor contribution to the total combined uncertainty of the CMC, an NMI or DI is free to use measurement services provided by laboratories accredited by a signatory to the ILAC Arrangement for calibration of instrumentation, provision of reference standards or other elements of its measurement system.

On May 2009, 21437 CMCs were published in the KCDB:

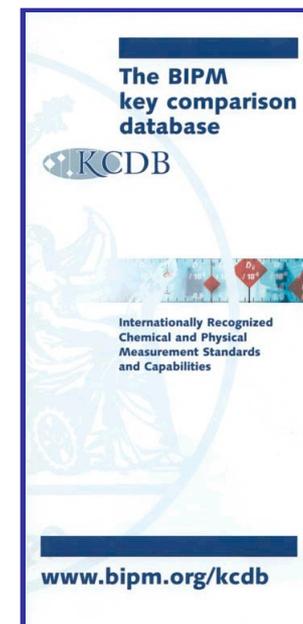
- ⊕ 13 333 in General Physics,
- ⊕ 3 3790 in Ionizing Radiation, and
- ⊕ 4 314 in Chemistry.

This is an additional ~1000 CMCs compared to last year GA.

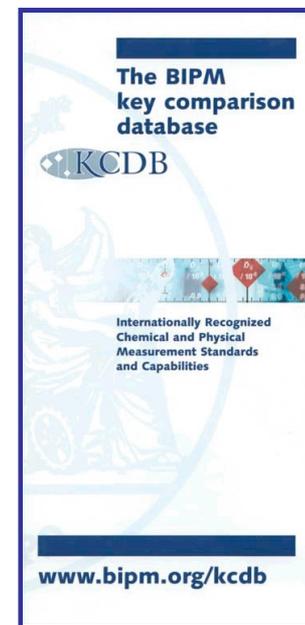
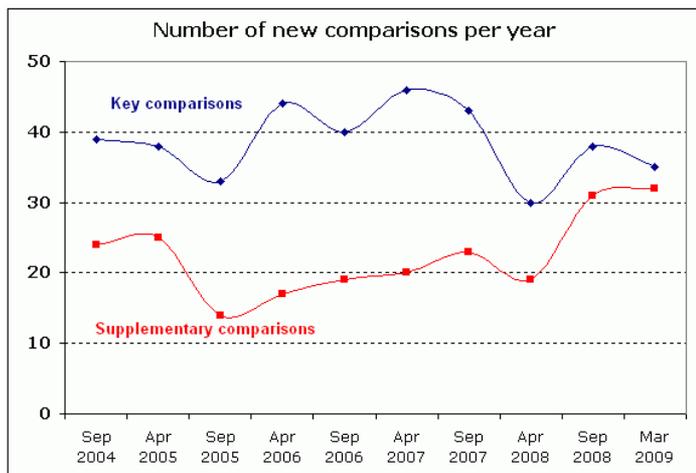
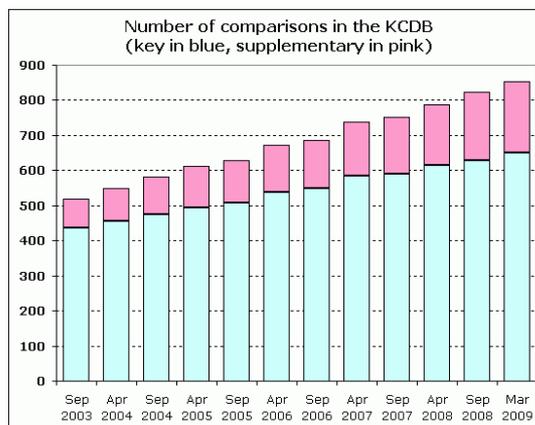
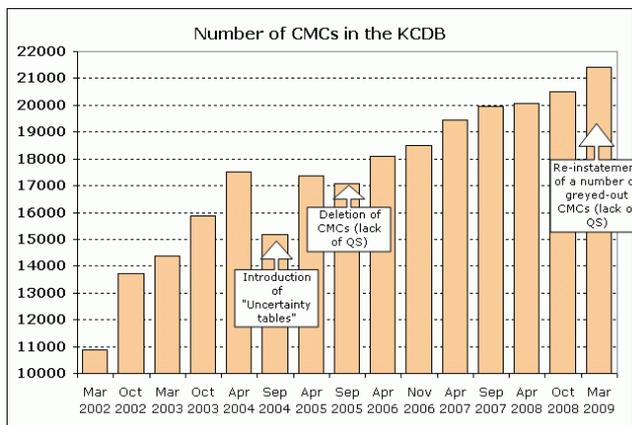
On May 2009, the database covered 657 key comparisons

- | | |
|--------------------|------------------------|
| ⊕ 81 from the BIPM | ⊕ 104 from EURAMET |
| ⊕ 327 from the CCs | ⊕ 1 from SADC MET, and |
| ⊕ 86 from APMP | ⊕ 33 from SIM |
| ⊕ 29 from COOMET | |

and 208 supplementary comparisons.



Evolution of CMC and Comparisons number



ILAC – BIPM (March 2009)

- ⊕ **Action 1:** Update references to standards, in particular in the **CIPM MRA text**, substitute **ISO Guide 25** with **ISO/IEC 17025**. (BIPM)
- ⊕ **Action 2:** Propose that the JCRB considers a change in policy. **On site reviews should be mandatory** (new RMOs should include this requirement in their review process). Review paragraph 7.3 of the CIPM MRA. (BIPM)
- ⊕ **Action 3:** Propose to the JCGM WG2 that in the reviews of the **VIM**, the **references to ILAC P10 should be made more general** as it is being reviewed and references to old version may not be correct, 2.41, note 7. (BIPM)
- ⊕ **Action 5:** ILAC to propose **new service categories** for those fields in which existing categories do not cover “low” level services.
- ⊕ **Action 9:** Include in the JCRB agenda the discussion on **ILAC document for accreditation of NMIs** (flow charts).

ILAC – BIPM (March 2009)

ILAC would welcome clarity on the whether the **uncertainty components due to the DUT** are included or not in the KCDB data.

- ⊕ **Action 10:** The BIPM to **raise this issue in the JCRB meeting and inform ILAC** when a policy is set.
- ⊕ **Action 11:** BIPM to ask the RMOs if they or their members have public documents for the estimation of uncertainties for particular cases of calibrations.
- ⊕ **Action 12:** BIPM to review technical note T7 of the CIPM MRA, aligning it to the new definition of CMC (a CMC includes, a magnitude, a range and an uncertainty).

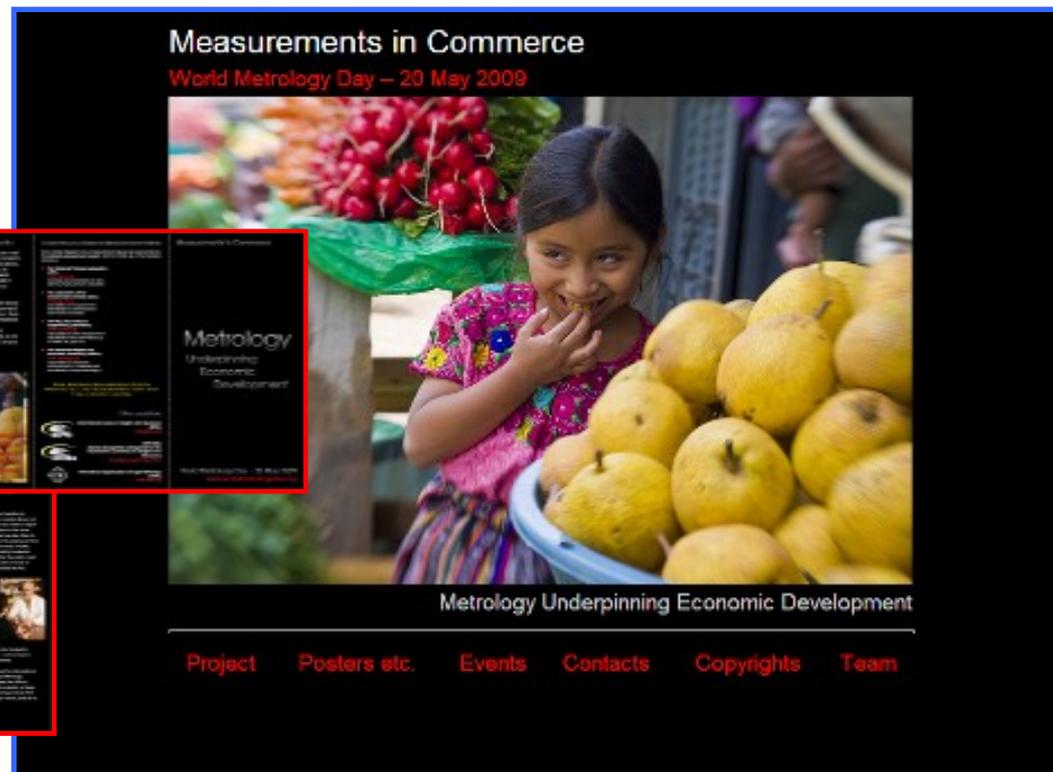
EVENTS



3rd AFRIMETS General Assembly
Working Group Meetings
12-14 July 2009, South Africa

World Metrology Day 2009

Metrology Underpinning Economic Development



Underpinning Economic Development

www.worldmetrologyday.org

3rd AFRIMETS General Assembly
Working Group Meetings
12-14 July 2009, South Africa



2009 Events

⊕ JCDCMAS

6 March 2009 – BIPM

⊕ BIPM QS Presentation

16 March 2009

⊕ 22nd JCRB

17 - 18 March 2009

⊕ Forum on Metrology Programs for States in Development

19 - 20 March 2009

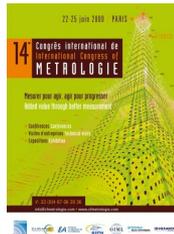
⊕ 2009 World Metrology Day

20 May 2009

⊕ Special session on the CIPM MRA

24 June 2009

part of the 14th International Congress of Metrology 22-25 June 2009 – Paris (FR)



⊕ 23rd JCRB

September 2009 – Kazan



⊕ 2009 Directors' Meeting

7 October 2009 – BIPM

⊕ 10-year anniversary of the CIPM MRA

8 - 9 October 2009 – BIPM



⊕ 98th CIPM

13 - 16 October 2009 – BIPM

⊕ Workshop on Physiological Quantities and SI Units

16 and 17 November 2009 – BIPM

⊕ Measurement Challenges for Global Observation Systems and Climate Change Monitoring

March 2010 – WMO, Geneva (CH)



10-year anniversary of the CIPM MRA

- Dates: **08-09 October 2009**
- Location: **OIE**, Paris, France
- Objectives:
 - Review the **inception of the CIPM MRA** in the historical context of the 1995 Agreement on Technical Barriers to Trade (TBT) of the World Trade Organization.
 - Assess the **progress accomplished by the CIPM MRA** in regards to the coordination of the international recognition of the national metrology infrastructure used worldwide in an effort to provide the technical basis for wider agreements negotiated for international trade, commerce and regulatory affairs.
 - Invite a discussion among metrologists, regulators and members of industry as to **where the CIPM MRA helped** ensure the world-wide uniformity of measures and **where more remains to be done**.
 - Develop a **vision for the evolution of the CIPM MRA** to meet the anticipated needs of society and industry at large.

10-year anniversary of the CIPM MRA

⊕ Attendees:

- **directors** of NMIs from Member States and Associates of the CGPM;
 - other relevant staff from **Designated Institutes**;
 - government officials (e.g., **regulators and legislators**) who might benefit from discussions on efforts to further the equivalency of national metrology systems throughout the world; and
 - representatives of **Intergovernmental Organizations** and **international bodies** whose missions benefit from the advancement of metrology.
- **Financed:** pay-for event + support from NMIJ

10-year anniversary of the CIPM MRA

⊕ Talks:

- **Welcome**
by Bob Kaarls (Secretary of the CIPM)
- **What is the CIPM MRA**
by Ernst Göbel (President of the CIPM and President of PTB)
- **Why was the CIPM MRA created? A brief history of the process that led to its inception.**
by Terry Quinn (former Director of the BIPM)
- **How reductions in TBTs enhance global trade: the role of international standards.**
by Pascal Lamy (Director-General of the WTO)
- **Challenges and opportunities for the developing world provided by international accords in metrology, accreditation and standardisation (MAS).**
by Lalith Goonatilake (Director of the Trade Capacity Building Branch of UNIDO)
- **How the implementation of international standards benefits from an internationally recognised national metrology system.**
by Rob Steele (Secretary-General of ISO)

10-year anniversary of the CIPM MRA

⊕ Talks (cont):

- **Measurement Challenges in Global Observation Systems: why are equivalent and stable traceable measurements essential to the issue of Climate Change Monitoring.**
by Wenjian ZHANG (Director of the Observing and Information Systems Department, WMO)
- **How the effectiveness of the International Laboratory Accreditation system depends on the CIPM MRA.**
by Daniel Pierre (President of ILAC and CEO of COFLAC)
- **How international corporation can benefit from the international equivalency of national measurement standards.**
by Randy J. Tinseth (Vice President - Marketing, Boeing Commercial Airplanes)
- **How the internationally recognized equivalency of national measurement standards helps meet foreign specifications.**
by Myungsoo Kim (President, KRISS)
- **How the CIPM MRA has supported the development of an NMI in a rapidly expanding economy.**
by DUAN Yuning (Vice Director, NIM)
- **The cost and benefits of the CIPM MRA to the NMIs of the world: the Brazilian experience.**
by João Alziro Herz da Jornada (President, INMETRO)



10-year anniversary of the CIPM MRA

⊕ Talks (cont):

- **How is the CIPM MRA enabling the development of national and regional metrology infrastructure in Africa.**
by Wynand Louw (Acting CEO, NMISA, South Africa and President, AFRIMETS)
- **Assessing the impact of NMI measurement science programs.**
by Hratch Semerjian (President & Executive Director of the Council for Chemical Research and Former CIPM Member)
- **Measurement and Wealth Creation.**
by Peter Swann (Professor of Economics at the Nottingham University Business School, UK)
- **An equivalent measure of quality of life: future challenges for the CIPM MRA in healthcare and the environment.**
by Laurence M Besley (Chief Executive and Chief Metrologist, NMIA)
- **The CIPM MRA today and tomorrow: how the CIPM MRA might evolve to support metrology needs in other sectors of society.**
by Andrew Wallard (Director of the BIPM)
- **Open floor discussion on the evolution of the CIPM MRA.**
moderated by Barry Inglis (Vice President of the CIPM)

10-year anniversary of the CIPM MRA

⊕ Expected Outputs:

- An improved **awareness** on the part of metrologists **of the metrological needs** of industry, governments, and intergovernmental organizations and an understanding of how to bring the need for effective national metrology programs to the attention of those communities.
- A wider **appreciation** on the part of industry, government officials and intergovernmental organizations **of the role that a world-wide uniform system of measures plays in society.**
- **Suggestions** from industry, governments, and intergovernmental organizations as to **how to evolve the CIPM MRA** to meet the industrial, legislative and regulatory challenges of the future.

Workshop on Physiological Quantities and SI Units

- ⊕ **Dates:** 16-17 November 2009
- ⊕ **Location:** BIPM, Sèvres, France
- ⊕ **Objectives:** bring together various interested communities – principally those concerned with traceable, reliable and comparable measurement, and those responsible for writing and applying specification standards and/or health and safety legislation.
- ⊕ **Website:** www.bipm.org/en/events/physiological_quantities/
- ⊕ **Attendees:** restricted to experts nominated by,
 - **Intergovernmental Organizations,**
 - **International Organizations,** and
 - **National Metrology Institutes.**
- **Financed:** pay-for event

Workshop on Physiological Quantities and SI Units

⊕ Opening – 16 November 2009

- **Welcome**
Andrew Wallard, Director, BIPM
- **Statements of the objectives**
Michael Kühne, Deputy Director, BIPM

● Session 1

Chairman: Michael Kühne, BIPM,
Co-Chairman: Franz Hengsberger, CIE

- **Optical radiation (infrared, visible light, ultraviolet)**
Yoshi Ohno, NIST
- **Discussion**
(including some material about Colorimetry, presented by Françoise Viénot)
- **Radio waves and microwaves**
Benjamin Loader, NPL
- **Discussion**
(including some material about the new ISO/IEC series 80003, presented by Anders Thor and Paul Gérôme, ISO)

Workshop on Physiological Quantities and SI Units

⊕ Session 2 – 16 November 2009

Chairman: Michael Kühne, BIPM

Co-Chairman: Malcolm Sperrin, Royal Berkshire Hospital, UK

- **Ionizing Radiation (radiation protection, new quantities, nano-dosimetry)**
Penelope Allisy-Roberts, BIPM
- **Discussion**
(including the European joint research projects “External beam cancer therapy” and “Increasing cancer treatment efficacy using 3D brachytherapy”, presented by Hans-Michael Kramer, PTB)
- **Sound and ultrasound**
Victor Humphrey, ISVR
- **Discussion**

Workshop on Physiological Quantities and SI Units

⊕ Session 3 – 17 November 2009

Chairman: Michael Kühne, BIPM

Co-Chairman: Leslie Pendrill, SP

- **Magnetic fields (AC, DC, intense magnetic fields)**

Bernd Ittermann, PTB

- **Discussion**

- **WHO International Standards and International Units**

René Dybkaer, REGION H Frederiksberg Hospital

- ⊕ **Discussion**

(including some feedback about the European 'Measuring the Impossible' Network MINET workshop, presented by Leslie Pendrill)

- ⊕ **Conclusions of the Workshop**

Workshop on Physiological Quantities and SI Units

⊕ Expected Outputs:

- a collaboration aimed at **relating the effects on the human body to measurements traceable to the SI** or to other internationally agreed standards;
- **harmonization of terms and methods** so that measurements made in different places can be related to each other, thereby enabling comparability of research work and a consistent approach to the estimation of effects on the human body;
- **best practice guides and/or documents** which may be adopted as the basis for the measurement aspects of international standardization, regulation and/or legislation; and
- **a commitment** by intergovernmental bodies and international organizations **to work together** of the agreed best practices.

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THANK YOU FOR YOUR ATTENTION



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