

BIPM Workshop on “Physiological Quantities and SI Units”

16 and 17 November 2009, at the BIPM

Chairman: Prof. Michael Kühne, BIPM

Scientific Secretary: Dr Claudine Thomas, BIPM

Agenda/Programme

16 November 2009

08:30 – 09:00 Registration

09:00 – 09:10 Welcome

Prof. Andrew Wallard, Director, BIPM

09:10 – 09:30 Statements of the objectives

Prof. Michael Kühne, Deputy Director, BIPM

Session 1

Chair: Prof. Michael Kühne, BIPM,

Co-Chair: Ms Teresa Goodman, NPL

09:30 – 10:30 **Optical radiation (ultraviolet, visible light, infrared)**

- Introduction: Dr Yoshi Ohno, NIST
- Photobiological quantities, Dr Ann Webb, University of Manchester
- Perceptual responses to optical radiation, Ms Teresa Goodman, NPL
- Physiology-based colorimetry, Prof. Françoise Viénot, MNHN

10:30 – 11:00 Discussion on issues related to optical radiation

11:00 – 11:30 Coffee break

11:30 – 12:15 **Radio waves and microwaves**

Dr Benjamin Loader, NPL

- Experimental dosimetry for mobile telecommunications and health (the UK MTHR programme)
- SAR standards for traceable measurement of the specific absorption rate of energy
- Legislation issues regarding electromagnetic fields (EMF) exposure

12:15 – 13:00 Discussion on issues related to radio- and micro- waves

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Information on the new ISO/IEC series 80003, Prof. Anders Thor and
Dr Paul G r me, ISO

13:00 – 14:00 Lunch

Session 2

Chair: Prof. Michael K hne, BIPM,

Co-Chair: Prof. Malcolm Sperrin, Royal Berkshire Hospital, UK

14:00 – 14:45 **Ionizing radiation**

Dr Penelope Allisy-Roberts, BIPM

- Radiation protection
- New quantities
- Nano-dosimetry

14:45 – 15:30 Discussion on issues related to ionizing radiation

Information on the European joint research projects “External beam cancer therapy” and “Increasing cancer treatment efficacy using 3D brachytherapy”, Dr Hans-Michael Kramer, PTB

15:30 – 16:00 Tea break

16:00 – 16:45 **Sound and ultrasound**

Prof. Victor Humphrey, ISVR

- The nature of sound
- The ear and audiology
- Physical effects of sound and ultrasound
- Airborne sound
- Airborne ultrasound and infrasound
- Ultrasound in the body
- Therapy fields

16:45 – 17:30 Discussion on issues related to sound

17:30 – 18:00 Conclusions of the day

19:00 Dinner

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Session 3

Chair: Prof. Michael Kühne, BIPM,

Co-Chair: Prof. Leslie Pendrill, SP

09:00 – 09:45 **Magnetic fields (AC, DC, intense magnetic fields)**

Dr Bernd Ittermann, PTB

- Regulatory issues
- Physiological effects of static magnetic fields
- Slowly varying magnetic fields and motion in gradient fields

09:45 – 10:30 Discussion on issues related to magnetic fields

10:30 – 11:00 **WHO International Standards and International Units**

Dr René Dybkaer, REGION H Frederiksberg Hospital

- Definitions
- Types of quantities and units
- Regulatory requirements
- Production of WHO International Standards
- Assignment of a value
- Metrological traceability
- Uncertainty budget
- Commutability
- Needed development

11:00 – 11:30 *Coffee break*

11:30 – 12:15 Discussion on issues related to physiological quantities not expressed using SI units

- WHO standards and units
- Information on the European “Measuring the Impossible” Network MINET, Prof. Leslie Pendrill, SP
 - Description - measurement dependent on human perception and/or interpretation
 - Present main achievements of the MINET consortium
 - Application of metrological issues to the “Measurement of Persons”

12:15 – 13:00 Conclusions of the Workshop

13:00 – 14:00 *Lunch*