



# BIPM Workshop on Challenges in Metrology for Dynamic Measurement

Date: 15-16 November, 2012

Venue: BIPM, Sèvres

Chairman: Dr Takashi Usuda, NMIJ/AIST, Japan

Scientific Secretary: Mr Nick Fletcher, BIPM

## Agenda

### 15 November 2012

08:45-09:00 Registration

09:00-09:10 Opening remarks, Prof. Michael Kühne, Director, BIPM

09:10-09:30 Statements of the objectives, Dr Takashi Usuda, NMIJ/AIST,

Session 1 Dynamic Mechanical Quantities (Force, Torque, Vibration, etc.)

Chairman: Dr Thomas Bruns, PTB

Co-Chairman: Dr Takashi Usuda, NMIJ/AIST

09:30-10:15 Invited talk 1

Title: Requested reliability of dynamic mechanical measurement in mobility,  
from automobile to service robot

Speaker: Dr Tatsuo Fujikawa, Japan Automobile Research Institute, Japan

10:15-11:00 Invited talk 2

Title: Challenges in dynamic torque and force measurement with special regard  
to industrial demands

Speaker: Dr André Schäfer, Hottinger Baldwin Messtechnik GmbH (HBM),  
Germany

11:00-11:30 Coffee break

11:30-12:15 Invited talk 3

Title: Dynamic measurements for mechanical quantity standards, from NMIs to  
industries

Speaker: Dr Gustavo Ripper, INMETRO

12:15-12:30 Discussion for Session 1



12:30-13:30 Lunch

Session 2 Dynamic Fluid and Flowmetry (Pressure, temperature, and volume of fluid)

Chairman: Dr John Wright, NIST

Co-Chairman: Dr Fredrik Arrhen, SP

13:30-14:15 Invited talk 4

Title: Dynamic Liquid Flow Applications and Methods for Measuring Flow Meter  
Dynamic Response

Speaker: Mr Chuck Gray, Micro Motion, United States of America

14:15-15:00 Invited talk 5

Title: Flow Measurements for Gaseous Fuel Dispensers

Speaker: Dr John Wright, NIST

15:00-15:15 Discussion for Session 2

15:15-15:45 Coffee break

Session 3 Thermo Physical Quantities (Thermal properties, material properties, etc.)

Chairman: Dr Jean-Remy Filtz, LNE

Co-Chairman: Dr Takashi Usuda, NMIJ/AIST

15:45-16:30 Invited talk 6

Title: Response time of temperature sensors for civil nuclear applications

Speaker: Dr Ronan Morice, LNE, France

16:30-17:15 Invited talk 7

Title: Dynamic measurements of thermophysical properties for material  
metrology standards

Speaker: Dr Tetsuya Baba, NMIJ/AIST

17:15-17:30 Discussion for Session 3

17:30-18:00 Summary of the day (by Dr Takashi Usuda)

18:15 Bus departs to the restaurant for the dinner

19:00 Dinner



**16 November 2012**

Session 4 System identification and calibration (Numerical analysis, GUM etc.)

Chairman: Dr Trevor Esward, NPL

Co-Chairman: Dr Thomas Bruns, PTB

09:00-09:45 Invited talk 8

Title: Industrial Requirements for Dynamic Measurements and the implications for metrology

Speaker: Mr Peter Loftus, Rolls-Royce, United Kingdom

09:45-10:30 Invited talk 9

Title: System identification and uncertainty analysis for challenging dynamic measurement applications: a case study in micro-Newton level force measurement

Speaker: Dr Ben Hughes, NPL

10:30-10:45 Discussion

10:45-11:15 Coffee break

Breakout sessions in 2 groups, 2 time slots

11:15-12:00

Mechanical Quantity: Chaired by Dr Thomas Bruns,  
Thermo physics: Chaired by Dr Jean-Remy Filtz

12:15-13:00

Fluid and Flowmetry: Chaired by Dr John Wright,  
Modelling and Uncertainty: Chaired by Dr Trevor Esward

13:00-14:00 Lunch

14:00-15:30 Wrap-up session

Chairman: Dr Takashi Usuda, NMIJ/AIST

15:30 Adjourn

*\* (Each invited talk includes 30 min presentation and 15 min discussion)*