

**Workshop and training course :  
Novel mathematical and statistical approaches to uncertainty  
evaluation**

292. PTB-Seminar  
21<sup>st</sup> – 23<sup>rd</sup> April 2015

**Organizers** M Bär (PTB), T Esward (NPL), N Fischer (LNE)  
**Venue:** Lecture Hall, Hermann-von-Helmholtz Bau  
Physikalisch-Technische Bundesanstalt (PTB), Berlin

**P R O G R A M M E**

**April 21**

12:00 Registration  
13:30 Introduction  
Project NEW04 - Novel approaches to uncertainty evaluation - and  
the European Centre for Mathematics and Statistics in Metrology  
M Bär, PTB, Germany  
14:30 EMPIR support for impact call  
T Esward, NPL, UK  
14:45 Key note  
The revised GUM and future challenges in uncertainty analysis  
M G Cox, NPL, UK  
15:30 Discussion  
16:00 End

**April 22**

**1<sup>st</sup> training session Decision making and conformity assessment**

09:00 Introduction  
L R Pendrill, SP, Sweden  
09:30 Conformity assessment for computationally expensive systems  
S Demeyer, LNE, France  
10:30 Coffee  
10:50 Conformance probabilities for multivariate cases  
N Fisher, LNE, France and L R Pendrill, SP, Sweden

11:50 Appraisal of existing guides: Risk analysis on the conformance assessment of el meters  
H Karlsson, JV, Norway and L R Pendrill, SP, Sweden

12:30 – 13:30 Lunch

**2<sup>nd</sup> training session** **Computationally expensive systems**

13:30 Uncertainty evaluation for computationally expensive models: what to do, how, and why  
L Wright, NPL, UK

14:30 Uncertainty in thermal diffusivity of a layered sample  
B Hay, LNE, France and L Wright, NPL, UK

15:30 Coffee

15:45 Uncertainty evaluation of geometric parameters derived by scatterometry: a case study  
V Soltwisch and S Heidenreich, PTB, Germany

16:45 Uncertainty in pipe flow for flow meter calibration  
K Rasmussen, FORCE, Denmark,  
A Fiebach and A Weissenbrunner, PTB, Germany

17:45 End

**18:00** **Dinner at PTB**

**April 23**

**3<sup>rd</sup> training session** **Regression and inverse problems**

09:00 Bayesian Regression - an Introduction  
C Elster, PTB, Germany

09:45 Flow meter calibration – normal linear regression with constraints  
P Harris, NPL, UK

10:15 Inference of thermophysical properties – use of hierarchical priors  
A Allard, LNE, France

10:45 Coffee

11:00 Analysis of immunoassay data – a statistical calibration problem  
K Klauenberg, PTB, Germany

11:30 Analysis of digital PCR data - a parametric inverse problem  
P Wilson, LGC Ltd., UK

12:00 End of workshop