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***Training Course:***

**Determination of Measurement Uncertainty**

**according to the GUM**

**Sarajevo, Bosnia and Herzegovina,  
29<sup>th</sup> September to 1<sup>st</sup> October 2010**

**Lecturers:**

**Stephan Mieke, PTB, Germany  
Wolfgang Schmid, EURAMET**

## About the course

- ❑ The course gives an introduction to the expression of uncertainty in measurement according to the GUM
- ❑ Focus is put on the standard GUM method (propagation of uncertainties); a short introduction to the Supplement 1 to the GUM (propagation of distributions via a Monte Carlo method) is given.
- ❑ Participants should be familiar with general basic concepts of metrology
- ❑ Duration: 20 hours

## Lecturers:

### Stephan Mieke

Physikalisch Technische  
Bundesanstalt - PTB

Berlin, Germany

Practical Measurement Uncertainty  
Senior Scientist

[stephan.mieke@ptb.de](mailto:stephan.mieke@ptb.de)

### Short CV:

1980      PhD in Physics,  
            Technical University Berlin

1976      PTB, Berlin

1980-2007 Testing and type approvals of  
            Medical Devices

2007      Measurement Uncertainty

## Lecturers:

### Wolfgang Schmid

European Association of National  
Metrology Institutes - EURAMET

Braunschweig, Germany

Head of Secretariat of EURAMET

[wolfgang.schmid@euramet.org](mailto:wolfgang.schmid@euramet.org)

### Short CV:

1994	PhD in Physics, University of Bayreuth
1995	PTB, Technical Cooperation
1998	CENAM (Mexico) - Optics and Radiometry Division - Lecturer of Metrology Courses
2005	PTB - iMERA-Project - EUROMET Secretary (since 2006)
2007	EURAMET, Head of Secretariat

## About the training material

- The training material was developed in 2010 by
  - Stephan Mieke, PTB, Germany
  - Wolfgang Schmid, EURAMET e.V.
  - Majlinda Hoxha, DPM, Albania

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# Outline:

1. Introduction (this chapter)
2. Basic principles and background
3. Main steps to determine measurement uncertainty according to GUM
4. GUM Supplement 1: Monte Carlo Method
5. Commercial software
6. Examples and exercises