



Dr. **Marija Bertovic**, born 1981, obtained her diploma in Psychology at the University of Rijeka and her doctoral degree in Work and Organizational Psychology at the Technical University in Berlin. Since 2006 she has been working on topics related to human factors in NDT at the BAM Federal Institute for Materials Research and Testing and at the DGZfP Education and Training Ltd.



Dr. **Ralf Holstein**, born 1961, received his diploma in communication engineering from the Technical University of Dresden in 1993. He is the Managing Director of the DGZfP Education and Training Ltd. In 2014, he earned his PhD at the VŠB – Technical University of Ostrava in the field of industrial systems management by analyzing organizational influences on NDT reliability. He is also the elected chairman of the DIN standardization committee “Qualification and Certification of Non-Destructive Testing Personnel”.



Dr. **Daniel Kanzler**, born 1983, obtained his diploma and master degree in Engineering at the University of Applied Sciences in Aschaffenburg in 2008 and a doctoral degree at the University of Rostock in 2016. In the period 2009 – 2015 he was working at the BAM Federal Institute for Materials Research and Testing in the division of radiological methods in the NDT reliability research team. Now he is an independent consultant for Applied Validation of NDT in the area of reliability evaluation of NDT systems. In 2012, he obtained an NDT Master degree from the DGZfP and was qualified with level 3 in ultrasonic, radiographic and eddy current testing according to ISO 9712.



Dr. **Mato Pavlovic**, born 1971, has a diploma in Mechanical Engineering from the University of Zagreb and a postgraduate doctors degree in Material Science from Saarland University. He is a researcher with over 10 years of experience in the field of non-destructive testing, especially ultrasonic testing. He is working at the BAM Federal Institute for Materials Research and Testing, in Berlin. His current research interests include the theoretical modeling and simulation, and reliability analysis of ultrasonic systems.

Registration

by **August 7, 2017** via www.nde-reliability.de

Fee

Tutorial: NDE Reliability for Practitioners 250.00 €
including documents, lunch and refreshments
The tutorial can also be booked in connection with the workshop.

Cancellation

by July 24, 2017: 50 % of participation fee
from July 25, 2017: no refund possible

Local Organization

Workshop Secretariat

Ms. Steffi Dehlau | German Society for Non-Destructive Testing (DGZfP) | Max-Planck-Str. 6 | 12489 Berlin | Germany
Phone: +49 30 67807-120 | Fax: +49 30 67807-129
E-mail: tagungen@dgzfp.de

Local Programme Organizer

Dr. Marija Bertovic | BAM Federal Institute for Materials Research and Testing | Unter den Eichen 87 | 12205 Berlin | Germany
E-mail: marija.bertovic@bam.de

Workshop Venue

Kongresshotel Potsdam
Am Luftschiffhafen 1 | 14471 Potsdam | Germany
www.kongresshotel-potsdam.com

Hotel Reservation

We have special conditions in the conference hotel (until August 6, 2017):

Reservation code: EAW Reliability of NDE
Single room, Sept. 3 – 4, 2017: 87.00 € per night
Single room, Sept. 4 – 9, 2017: 95.00 € per night

Your reservation please send

by e-mail: info@hukg.de
by fax: +49 331 90770-777

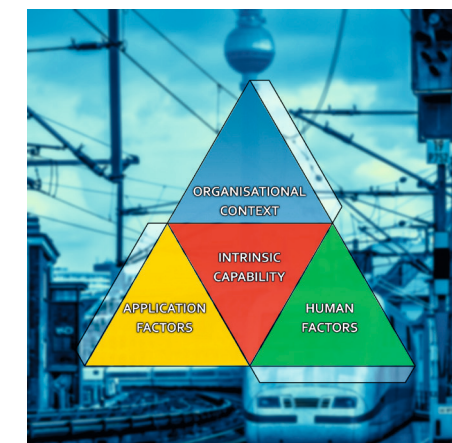
More hotels can be found at the Potsdam Tourism website:
www.potsdam-tourism.com/hosts/search-book.html



in connection with:
**7th European-American Workshop
on Reliability of NDE**

TUTORIAL:

NDE Reliability for Practitioners



September 4 – 5, 2017, Potsdam, Germany
www.nde-reliability.de

The tutorial will start with an overall introduction to NDE reliability (motivation, role of reliability), highlighting the factors relevant to reliability, i.e. intrinsic capability, application factors, human factors and the organizational context.

The tutorial is divided into three parts:

1. Basic principles of the probability of detection (POD) and the problem of real defects

Dr. Daniel Kanzler

In this part of the tutorial, the essential requirements and ideas of reliability of NDE methods will be introduced. The main task is to provide the statistical basis necessary for the understanding and description of the physical behavior of NDE systems. The keyword here is probability of detection – the POD. The focus of the tutorial will be how a POD evaluation is made both in general and explicitly for different NDE methods. It will provide the statistical formulas to be used and highlight challenges and solutions for using the POD in the field. Furthermore, a range of topics from the basic principles to the widespread use of the POD in different areas with different NDE methods will be outlined. The tutorial will be useful to people new in the field of reliability and will provide a basis for understanding of the advanced models that will be presented in the remainder of the tutorial and during the oral sessions. Moreover, the content should be interesting to experienced POD users who want an overview of the different POD applications in the field.

Topics: Introduction to the reliability and its need | Statistical basics for the evaluation of POD and alternatives | Approaches to the evaluation of real defect data

2. Advanced principles of POD: Multi-parameter POD for industrial systems

Dr. Mato Pavlovic

In recent years, the growing recognition of the importance of NDE systems reliability analysis has contributed to its swift expansion into new fields of application. The limits of conventional models have been quickly reached and a need for development of new models has emerged. In the second part of the tutorial, the limits of the application of a conventional signal-response model are discussed. A new model that calculates the POD as a function of several influencing parameters is presented.

This model relies on theoretical modeling of the inspection, as well as experimental measurements to express the POD as function of several influencing parameters. Furthermore, the volume POD, a method to calculate and display the POD over the geometry of the inspected part, is presented. The method is particularly useful when several inspections of the same part are performed and when there is a need for a combination of reliability data (data fusion). This part of the tutorial is intended for all those who would like to learn how to estimate the simultaneous influence of several factors on the POD in their inspections. Those interested in the new developments in the field of NDE reliability analysis and interested in the use of theoretical models and simulation to support the experimental measurements in an estimation of the POD will also find interest in presented topics.

Topics: Limitations of the conventional signal-response model | Multi-parameter POD | Volume POD

3. Human and organizational influences on NDE reliability

Dr. Marija Bertovic, Dr. Ralf Holstein

Human and organizational factors have always puzzled the NDE community. If the technology hasn't failed, then it must be the "human factor". But what are human factors exactly? What do they entail? And how can we use the knowledge about human factors to keep up with the highest reliability and safety standards in the everyday NDE practice? To be able to do this, a deeper understanding of human behavior in the context of NDE organizations is essential. This will be in focus of the third part of the tutorial. It will start with the definition of human factors, sources of human error, different approaches for identifying risks involving human inspectors, and offer practical strategies for how human factors can be further investigated and handled in practice. In the remaining time the focus will shift onto situating NDE reliability in the everyday NDE practice.

A basic need for the management of reliability is to know and understand the various influencing factors. Therefore, the framework of major influences from the society and the organization will be sketched in an open exchange with the participants of the tutorial. Furthermore, this framework will be systematically analyzed, resulting in an optimized organizational process.

This part of the tutorial will deepen the participants' understanding of human and organizational factors and their effects on the reliability of NDE in theory and practice. It is intended not only for all those involved in the design, management, and control of inspection processes and procedures, but also for inspectors and scientists, wishing to obtain more knowledge on the complexities of human factors.

Topics: NDE reliability in the daily practice (influence of management and society) | Introduction to human factors (HF) | Methods for assessment of HF | HF in practice | Implications for the NDE practice (optimization strategies, procedure writing guidelines, etc.)

Monday, September 4, 2017	
09:00 – 10:30	Welcome and introduction to reliability
11:00 – 14:00	Basic POD
14:00 – 14:30	Questions & Answers
15:00 – 17:00	Human Factors

Tuesday, September 5, 2017	
08:30 – 10:30	Advanced POD
11:00 – 12:00	Organizational Factors

Intended audience:

Reliability newcomers | Experienced POD users, who wish to obtain an overview of different POD applications in the field | Experienced POD users interested in new developments in the field of NDE reliability analysis | Regulators | NDE process designers | Managers | Supervisors | Procedures' writers | Inspectors | Quality controllers | Scientists