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## PROGRAM

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### CHAIR

Steffen Freitag, Ruhr University Bochum, Germany

### FOUNDERS AND GENERAL CHAIRS

Rafi L. Muhanna, Georgia Institute of Technology, USA  
Robert L. Mullen, University of South Carolina, USA

### KEYNOTE SPEAKERS

**Prof. Michael Beer**  
Leibniz University Hannover, Germany  
University of Liverpool, UK  
Tongji University, China

**Prof. Michael Oberguggenberger**  
University of Innsbruck, Austria

**Dr. Scott Ferson**  
Applied Biomathematics, USA  
Stony Brook University, USA

TUESDAY JUNE 14<sup>TH</sup>, 2016 | MERCURE HOTEL (BOCHUM CITY)

18:00 – 21:00 Icebreaker Reception and Registration

WEDNESDAY JUNE 15<sup>TH</sup>, 2016 | RUHR UNIVERSITY BOCHUM

7:45 Shuttle Departs from Starlight Express (Renaissance & Ramada Hotel) to RUB

8:00 Shuttle Departs from Bochum Hbf - Main Station (MERCURE & Ibis Hotel) to RUB

8:30 Registration

9:00 **Opening Remarks**

9:30 **Session 1, Chair: Rafi Muhanna**

9:30 KEYNOTE PRESENTATION: **Michael Oberguggenberger**  
*Analyzing Uncertainty in Civil Engineering*

10:20 **M. A. Valdebenito**, C. A. Pérez, H. A. Jensen, M. Beer  
*Approximation Concepts for Fuzzy Analysis in Structural Dynamics*

10:45 Break

11:15 **Session 2, Chair: Wolfgang Graf**

11:15 N. Xiao, **R. L. Mullen**, R. L. Muhanna  
*Static Analysis of Structural Systems with Uncertain Parameters Using Probability-Box*

11:40 **Q. Wang**, Y. Liu, N. Lu  
*Reliability Assessment of Long-Span Cable-Stayed Bridges Based on a Hybrid Algorithm*

12:05 Á. Rózsás, **M. Sýkora**  
*Effect of Statistical Uncertainties on Extreme Wind Speeds*

12:30 **A. Kučerová**, J. Sýkora, E. Janouchová, D. Jarušková and J. Chleboun  
*Acceleration of Robust Experiment Design using Sobol Indices and Polynomial Chaos Expansion*

12:55 Lunch

14:20 **Session 3, Chair: Marcos Valdebenito**

14:20 A. Pospíšilová, **M. Lepš**  
*Multi-Objective Reliability-Based Design Optimization using Subset Simulation Enhanced by Meta-Models*

14:45 **Y. Luo**, D. Yan, N. Lu  
*Probabilistic Modeling of Fatigue Damage in Steel Box-Girder Bridges Subject to Stochastic Vehicle Loads*

15:10	<b>L. Nguyen-Tuan</b> , T. Lahmer, C. Könke, V. Bettzieche <i>Damage Identification and Uncertainties in Coupled Non-Linear Thermo-Hydro-Mechanical Problems Applied to Masonry Dams</i>
15:35	<b>S. Ray</b> , O. P. Yadav <i>Approximation of ECG Signals using Chebyshev Polynomials</i>
16:00	Break
<b>16:20</b>	<b>Session 4, Chair: Steffen Freitag</b>
16:20	<b>E. Janouchová</b> , A. Kučerová, J. Sýkora, J. Vorel, R. Wendner <i>Bayesian Calibration of Lattice Discrete Particle Model for Concrete</i>
16:45	<b>N. Lu</b> , M. Noori, M. Beer <i>Dynamic Reliability Assessment for Long-Span Bridges under Heavy Stochastic Traffic Flows</i>
17:10	<b>M. Vořechovský</b> , V. Sadílek, J. Eliáš <i>Application of Voronoi Weights in Monte Carlo Integration with a Given Sampling Plan</i>
17:35	<b>M. E. Alalade</b> , L. Nguyen-Tuan, F. Wuttke, T. Lahmer <i>Inverse Analysis of Coupled Hydro-Mechanical Problem in Dynamically Excited Dams</i>
18:00	Shuttle Departs to Planetarium
<b>19:00</b>	<b>Music Show Planetarium Bochum</b>
20:15	Shuttle Departs to Hotels

THURSDAY JUNE 16<sup>TH</sup>, 2016 | RUHR UNIVERSITY BOCHUM

8:15	Shuttle Departs from Starlight Express (Renaissance & Ramada Hotel) to RUB
8:30	Shuttle Departs from Bochum Hbf - Main Station (MERCURE & Ibis Hotel) to RUB
<b>9:00</b>	<b>Session 5, Chair: Robert Mullen</b>
9:00	KEYNOTE PRESENTATION: <b>Michael Beer</b> <i>Dealing with Vague and Limited Information in Uncertainty Quantification</i>
9:50	A. M. Pownuk, O. M. Kosheleva, <b>V. Kreinovich</b> <i>Limitations of Realistic Monte-Carlo Techniques in Estimating Interval Uncertainty</i>
10:15	Break
<b>10:45</b>	<b>Session 6, Chair: Venkata Rama Rao Mallela</b>
10:45	P. Longo, N. Maugeri, <b>G. Muscolino</b> , G. Ricciardi <i>Analysis of Truss Structures with Uncertainties: From Experimental Data to Analytical Responses</i>
11:10	<b>E. D. Popova</b> <i>Interval Model of Equilibrium Equations in Mechanics</i>
11:35	N. Xiao, <b>R. L. Muhanna</b> , F. Fedele <i>Structural Dynamic Response under Uncertainty - An Interval Finite Element Approach</i>
12:00	<b>A. Sofi</b> , E. Romeo <i>A New Interval Finite Element Method: Computational Issues</i>
12:25	Lunch
<b>13:50</b>	<b>Session 7, Chair: Alba Sofi</b>
13:50	<b>M.D. Shields</b> , J. Zhang <i>Efficient Propagation of Imprecise Probabilities</i>
14:15	<b>F. Leichsenring</b> , W. Graf, M. Kaliske <i>Numerical Simulation of Wooden Structures with Polymorphic Uncertainty in Material Properties</i>
14:40	J. Mohammadi, <b>M. Modares</b> , J. Bergerson <i>Structural Condition Assessment Using Imprecise Probability</i>
15:05	Á. Rózsás, <b>M. Sýkora</b> <i>Propagating Snow Measurement Uncertainty to Structural Reliability by Statistical and Interval-Based Approaches</i>
15:30	Break

<b>16:00</b>	<b>Session 8, Chair: Giuseppe Muscolino</b>
16:00	<b>M. Imholz, M. Faes, D. Vandepitte, D. Moens</b> <i>On the Comparison of Two Novel Interval Field Formulations for the Representation of Spatial Uncertainty</i>
16:25	<b>M. V. Rama Rao, R. L. Muhanna, R. L. Mullen</b> <i>Interval Finite Element Analysis of Thin Plates</i>
16:50	<b>A. Serafinska, K. Özenç, M. Kaliske, W. Graf</b> <i>A Fail-Safe Design Approach Based on the Fracture Mechanical Analysis and Epistemic Uncertainty Quantification</i>
17:15	Shuttle Departs to Henrichshütte
<b>18:15</b>	<b>Guided Tour at Steelworks Museum Henrichshütte</b>
<b>20:00</b>	<b>Dinner at Henrichs Restaurant</b>
23:30	Shuttle Departs to Hotels

FRIDAY JUNE 17<sup>TH</sup>, 2016 | RUHR UNIVERSITY BOCHUM

8:15 Shuttle Departs from Starlight Express (Renaissance & Ramada Hotel) to RUB

8:30 Shuttle Departs from Bochum Hbf - Main Station (MERCURE & Ibis Hotel) to RUB

9:00 **Session 9, Chair: Ekaterina Auer**

9:00 **KEYNOTE PRESENTATION: Scott Ferson**  
*Epistemic Uncertainty in Agent-based Modeling*

9:50 L. Longpré, **O. Kosheleva**, V. Kreinovich  
*How to Estimate Amount of Useful Information, in Particular under Imprecise Probability*

10:15 Break

10:45 **Session 10, Chair: Scott Ferson**

10:45 **S. Ray**, S. Ralhan  
*Reliable Power Flow Analysis of Systems with Uncertain Data*

11:10 **E. Auer**, S. Kiel  
*Uses of Methods with Result Verification for Simplified Control-Oriented Solide Oxide Fuel Cell Models*

11:35 S. Benferhat, **V. Kreinovich**  
*Why Min-Based Conditioning*

12:00 **O. Kosheleva**, V. Kreinovich  
*Voting Aggregation Leads to (Interval) Median*

12:25 Lunch

13:50 **Session 11, Chair: Vladik Kreinovich**

13:50 L. Valera, **M. Ceberio**  
*Model-Order Reduction Using Interval Constraint Solving Techniques*

14:15 **B. T. Cao**, S. Freitag, G. Meschke  
*Real-Time Prediction of Structural Processes with Polymorphic Uncertain Data*

14:40 **Closing Remarks**

15:00 Break

15:30 Shuttle Departs to German Mining Museum

16:15 **Guided Tour at German Mining Museum Bochum**

17:30 Shuttle Departs to Hotels



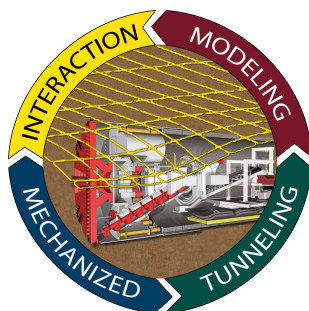
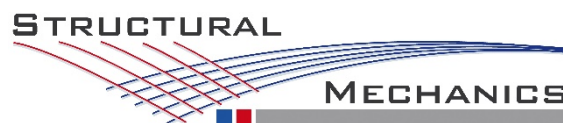


Ministerium für Innovation,  
Wissenschaft und Forschung  
des Landes Nordrhein-Westfalen



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SFB 837  
INTERACTION MODELING IN  
MECHANIZED TUNNELING